

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION**

NORIX GROUP, INC.,

Plaintiff,

v.

CORRECTIONAL TECHNOLOGIES, INC.,
d/b/a CORTECH USA, and VDL
INDUSTRIES, LLC, d/b/a AMERICAN
SHAMROCK,

Defendants.

Case No. 17-cv-07914

Honorable John Robert Blakey

SUPPLEMENTAL JOINT CLAIM CONSTRUCTION APPENDIX

APPEAL BRIEF IN EX PARTE REEXAMINATION
NO. 90/014,844 OF U.S. PAT. NO. 10,507,150

| <u>Date</u> | <u>Proceeding</u> | <u>Document</u> | <u>Page</u> |
|--------------------|--------------------------|------------------------|--------------------|
| 1/30/2024 | 90/014,844 | Appeal Brief | SA001 |
| 1/30/2024 | 90/014,844 | Evidentiary Appendix | SA049 |

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | |
|---|------------------------------|
| Inventors: Richard B. Karl, Scott Karl, and Kurt Staskon | Group Art Unit: 3993 |
| Application No. 90/014,844 | Examiner: Russell D. Stormer |
| Filed: 08/27/2021 | Confirmation No. 4487 |
| Title: <i>Ex Parte</i> Reexamination of U.S. Pat. No. 10,507,150 | |

MAIL STOP APPEAL BRIEF

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

APPEAL BRIEF

Appellant submits this Appeal Brief in response to the final Office action mailed August 29, 2023, and further to the Notice of Appeal filed October 30, 2023. Appellant requests consideration of this appeal by the Patent Trial and Appeal Board.

Application 90/014,844

I. REAL PARTY IN INTEREST

The real party in interest is the owner of U.S. Pat. No. 10,507,150 (the “’150 patent”), Norix Group, Inc. (“Norix”). Norix owns the ’150 patent by virtue of assignments from all inventors. *See* REEL/FRAME No. 052943/0335.

II. RELATED APPEALS, INTERFERENCES, AND TRIALS

The following proceedings are related to this appeal:

a. Norix Group, Inc. v. Correctional Technologies, Inc. d/b/a Cortech USA, et al., No. 20-cv-01158, pending in the United States District Court for the Northern District of Illinois.

In the above-captioned lawsuit, Norix asserts the ’150 patent against defendant Correctional Technologies, Inc., d/b/a Cortech USA (“Cortech”) and a related entity, VDL Industries, LLC, d/b/a American Shamrock. Cortech requested the *ex parte* reexamination that is currently on appeal.

b. Ex Parte Reexamination No. 90/014,485.

On April 4, 2020, Cortech, the principal defendant in the above-cited lawsuit, requested a first *ex parte* reexamination of the ’150 patent. That reexamination concluded on August 19, 2021, when the examiner issued a certificate of reexamination confirming the patentability of claims 1, 4-5, 7-14 in original form, claims 2-3 and 6 as amended, and new claims 15-18. *See* Reexam. Cert. No. 10,507,150 C1 (A20-A21).¹

¹ References to A___ refer to the evidentiary appendix filed concurrently with this brief.

Application 90/014,844

c. Norix Group, Inc. v. Correctional Technologies, Inc. d/b/a Cortech USA, et al., Case No. 17-cv-07914, pending in the United States District Court for the Northern District of Illinois.

In the above-captioned lawsuit, Norix asserts a patent from the same family as the '150 patent, U.S. Pat. No. 9,661,933 (the "'933 patent"; A100-A118) against Cortech.

d. Ex Parte Reexaminations No. 90/014,516 and No. 90/014,852.

On May 26, 2020, Cortech requested *ex parte* reexamination of the '933 patent on similar grounds as it requested reexamination of the '150 patent. Cortech's first such request led to *ex parte* reexamination No. 90/014,516. On September 7, 2021, before the examiner issued a final office action in the first reexamination, Cortech requested a second *ex parte* reexamination of the '933 patent. Cortech's second request led to *ex parte* reexamination No. 90/014,852.

These proceedings were merged and concluded on September 15, 2023, when the examiner issued a certificate of reexamination confirming the patentability of claims 1-8 and 10-11 in original form, claims 12-15 as amended or as dependent on an amended claim, and new claims 16-19 (claim 9 was unchallenged). *See* Reexam. Cert. No. 9,661,933 Cl (A119-A120).

III. SUMMARY OF CLAIMED SUBJECT MATTER

In the following summary, references to column and line numbers are references to the specification of the '150 patent (A1-A19). Breaks and indentation are for convenience.

Application 90/014,844

a. Independent Claim 1

1. An intensive use bed comprising

| | |
|---|---|
| a molded, non-penetrable outer shell | (3:61-4:2; Fig. 1 & 3, element 20; <i>see also</i> 4:7-9; 4:14-15 8:40-45; Fig. 2 & 4, showing element 20 in a bottom perspective view) |
| having a generally horizontal top, | (3:62; Fig. 1 & 3, element 22; <i>see also</i> 4:2-7) |
| a bottom, | (4:15-20, Fig. 2 & 4, element 34) |
| a pair of generally vertical end walls, | (3:62, Fig. 1-4, element 24) |
| a generally vertical first side wall, | (3:63, Fig. 1-4, element 26) |
| a generally vertical second side wall | (3:63, Fig. 1-4, element 26) |
| and a plurality of mounting flanges, | (4:50-57, Fig. 6 & 9, element 46; <i>see also</i> Fig. 1-4, fastener pocket element 32, which shows the location of the elements shown in Fig. 6 & 9 relative to the bed) |
| each of the generally vertical end walls on the top, | (3:62; Fig. 1 & 3, elements 22 & 24) |
| the first generally vertical side wall on the top, | (3:63; Fig. 1 & 3, elements 22 & 26) |
| the first side wall attached to and between the pair of end walls | (3:62-63; Fig. 1-4, elements 24 & 26) |

Application 90/014,844

| | |
|--|--|
| whereby the end walls are in spaced relation and substantially parallel to each other, | (3:62; Fig. 1-4, element 24) |
| the second generally vertical side wall on the top, | (3:63; Fig. 1 & 3, elements 22 & 26) |
| the second side wall attached to and between the pair of end walls, | (3:62-63; Fig. 1-4, elements 24 & 26) |
| the bottom on the pair of generally vertical end walls, | (4:15-17, Fig. 2 & 4, elements 34 & 24) |
| the bottom attached to the first and second side walls | (4:15-17, Fig. 2 & 4, elements 34 & 26) |
| whereby the top and bottom are in spaced relation and substantially parallel to each other, | (Fig. 1-4, elements 22 & 34) |
| each of the plurality of mounting flanges comprising a bolt hole extending through the bottom, | (4:53-57; Fig. 1, 3 & 4, element 40; <i>see also</i> Fig. 6 & 9, showing bolt B inserted in a bolt hole (not labeled) beginning in the fastener pocket element 32 in the wall and extending through the bottom (not labeled) into the floor F) |
| one of the plurality of mounting flanges disposed in a first one of the pair of end walls adjacent the bottom, | (4:50-57, Fig. 6 & 9, element 46; <i>see also</i> Fig. 1-4, fastener pocket element 32, which shows the location of the elements shown in Fig. 6 & 9 relative to the bed) |

Application 90/014,844

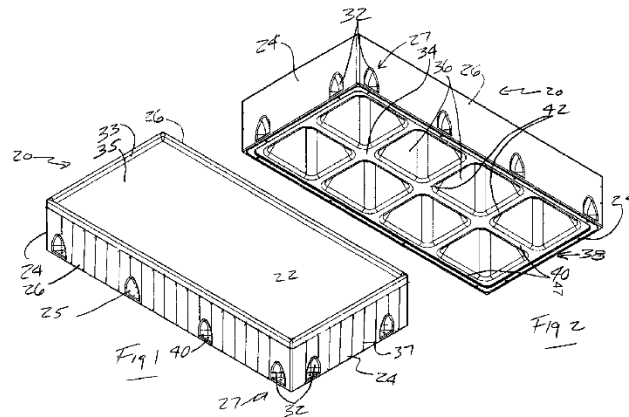
| | |
|---|---|
| another one of the plurality of mounting flanges disposed in the first side wall adjacent the bottom, | (4:50-57, Fig. 6 & 9, element 46; <i>see also</i> Fig. 1-4, fastener pocket element 32, which shows the location of the elements shown in Fig. 6 & 9 relative to the bed) |
| a first end support ridge in the first one of the pair of end walls, | (4:32-35; Fig. 1 & 3, element 37) |
| a first side support ridge disposed in the first side wall, | (4:32-35; Fig. 1 & 3, element 37) |
| a recessed pocket in the top, | (4:4-7; Fig. 1 & 3, recessed pocket formed by ridge (element 33) and the support portion of the top surface (element 35)) |
| a recessed pocket in the bottom. | (4:17-20; Fig. 2 & 4, element 36) |

Taken together, the elements of claim 1 describe a bed in the form of a single shell having a top, a bottom, two end walls, and two side walls. There is a recessed pocket in the top, a recessed pocket in the bottom, and support ridges in at least one end wall and at least one side wall. Generally speaking, the top, bottom, and walls are oriented relative to each other to enclose a space, like a closed box or shell.²

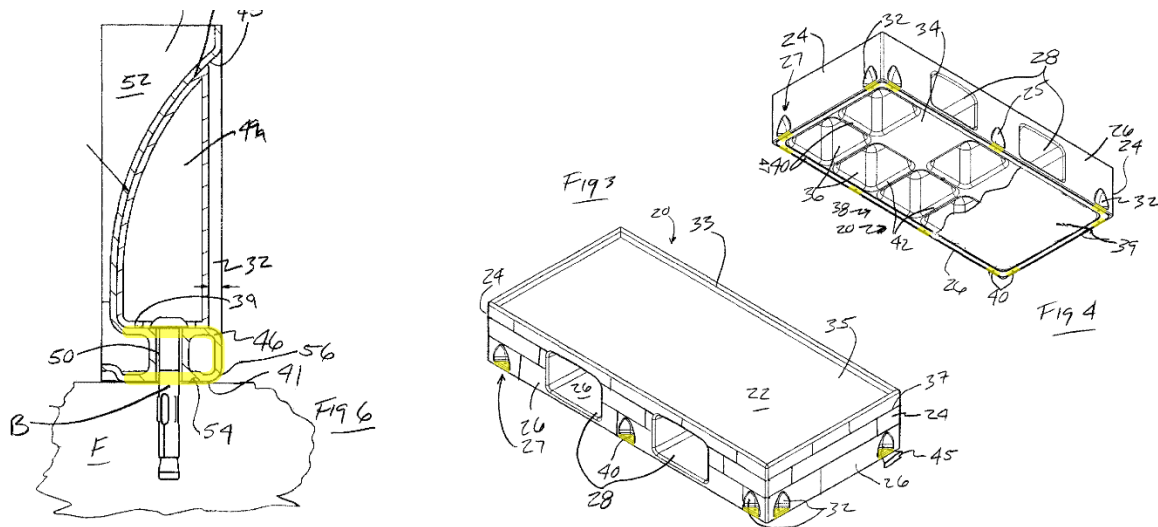
This is consistent with the drawings, for example Figures 1-2, which depict an embodiment of such a bed:

² The terms “enclose a space” and “closed box or shell” are used here not to suggest additional limitations, but rather to describe the outcome of orienting the top, bottom, walls, and other structures as they are already limited.

Application 90/014,844



In addition, there are mounting flanges “disposed in” the end or side wall and “adjacent” the bottom, which have a bolt hole “extending through” the bottom. This also is consistent with the drawings, for example Figures 3-4 and Figure 6, which depict an embodiment of the claimed mounting flange:



As described in the specification: “The mounting flange 46 is formed in each of the fastener pockets 32 having a top side 39 in the fastener pocket 32 adjacent the contoured surface and a bottom side 41 on the bottom surface 34. The fastener hole 40 extends from the top side 39 to the bottom side 41 and is adapted to receive a fastener such as a bolt extending through the mounting flange for attachment to a structure such as the floor F.” (4:50-57.)

Application 90/014,844

b. Independent Claims 2 and 3 (the storage compartment claims)

Independent claim 2 and claim 3 were originally dependent on claim 1, but during the '485 *ex parte* reexamination they were amended to incorporate the limitations of claim 1 so that they could stand on their own, given that the examiner found claims 2 and 3 allowable before concluding that claim 1 also was allowable. *See* 2/22/21 Office Action in Reexam. No. 90/014,485 at 13 (A157); *see also* Reexam. Cert. No. 10,507,150 C1 (A20-A21). Claims 2 and 3 thus incorporate all limitations of claim 1 as described above, with the following additional limitations:

2. An intensive use bed comprising [the limitations of claim 1], the intensive use bed further comprising

| | |
|--|-----------------------------------|
| a storage compartment in one of the generally vertical end walls, the first side wall or the second side wall. | (4:42-46; Fig. 3 & 4, element 28) |
|--|-----------------------------------|

3. An intensive use bed comprising [the limitations of claim 1], the bed further comprising

| | |
|--|-----------------------------------|
| a storage compartment integrally molded into the molded outer shell. | (4:42-46; Fig. 3 & 4, element 28) |
|--|-----------------------------------|

c. Dependent Claims 4-5, 7-9, and 15-16

Claims 4-5 and 7-9 are all dependent claims of claim 1. The examiner in the '485 reexamination determined that claims 1, 4-5 and 7-9 were patentable as originally drafted. *See* Reexam. Cert. No. 10,507,150 C1 (A20-A21). Claims 15 and 16 also are dependent claims of claim 1, added in the '485 reexamination and found to be patentable. *See id.* The additional limitations of these claims are as follows:

Application 90/014,844

| <u>Claim</u> | <u>Additional Limitations</u> | <u>Citation</u> |
|---------------------|--|---|
| 4 | The intensive use bed of claim 1, further comprising a ridge on the top, the ridge adjacent to the recessed pocket. | (4:2-7; Fig. 1 & 3, element 33) |
| 5 | The intensive use bed of claim 1, wherein the molded outer shell further comprises a contoured outer surface. | (4:7-9; Fig. 1-4 generally) |
| 7 | The intensive use bed of claim 1, wherein the first contoured end support ridge and the first contoured side support ridge are oriented in a generally vertical orientation perpendicular to the top. | (4:32-35; Fig. 1, element 37) |
| 8 | The intensive use bed of claim 1, further comprising a contoured, second end support ridge on a second one of the pair of end walls and a second side support ridge on the second side wall. | (4:32-35; Fig. 1 & 3, element 37) |
| 9 | The intensive use bed of claim 8, wherein the first and second end support ridges are disposed in a generally horizontal orientation, the first and second side support ridges are disposed in a generally horizontal orientation. | (4:32-35; Fig. 3, element 37) |
| 15 | The intensive use bed of claim 1, wherein the outer shell defines an inner chamber. | (3:61-63; 4:15-20; <i>see also</i> 8:40-45; Fig. 1-4 generally) |

Application 90/014,844

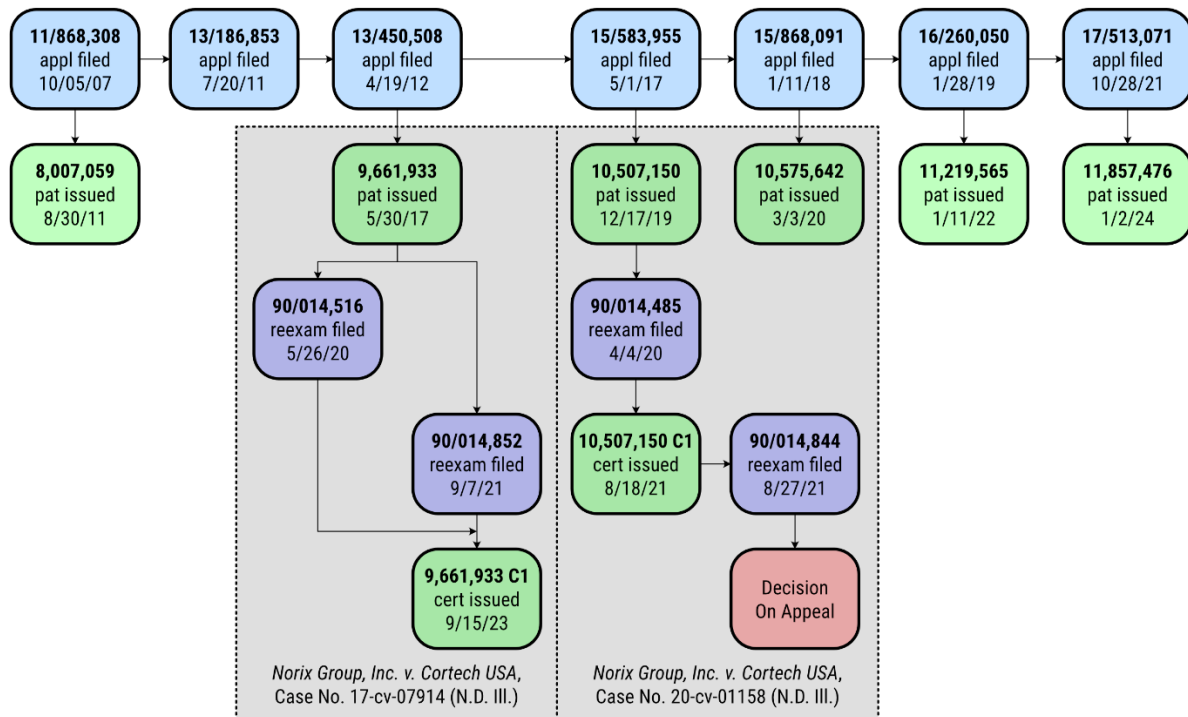
| | | |
|----|---|----------------------------------|
| 16 | The intensive use bed of claim 15, wherein the outer shell is one piece. | (8:40-45; Fig. 1-4 generally) |
|----|---|----------------------------------|

IV. ARGUMENTS

On October 5, 2007, three Norix employees filed U.S. Patent Application No. 11/868,308, which disclosed an innovative line of “intensive-use furniture,” furniture suitable for use in demanding environments such as behavioral health facilities and detention centers. Among the furniture disclosed was an intensive-use bed based on a single, closed, molded shell, the shell having several elements formed in it making the bed particularly suitable for use in such environments.

The ’308 application led to a family of patents six-patents strong. Three patents are asserted in litigation, and two patents, the ’933 patent and the ’150 patent, have been previously reexamined at the request of Norix’s opponent in that litigation. With the exception of the decision presently on appeal, all prior reexaminations have confirmed the patentability of the challenged claims in original or amended form. The following chart shows the patent family history and the relationship between the patents and related proceedings:

Application 90/014,844



This matter is on appeal from the final office action in the second *ex parte* reexamination of claims 1-5, 7-9, and 15-16 of the '150 patent (A1-A19). In the office action on appeal (A22-A50), the examiner rejected claims 1-5, 7-9, and 15-16 as obvious under 35 U.S.C. § 103 based on:

- (1) a product catalog from a manufacturer of fiberglass beds known as Glasspec (“Glasspec”) and various combinations of:
- (2) U.S. Patent No. 5,490,292 to Auburn titled “Cot” (“Auburn”);
- (3) U.S. Patent No. 5,857,742 to Karl, et al. titled “Molding Chair” (“Karl”); and
- (4) U.S. Patent Appl. No. 2004/0078897 to Gladney titled “Plastic Mattress Foundation” (“Gladney”).

FOA at 3 (A25).³ The examiner asserted four grounds for rejection based on Glasspec and various combinations of Auburn, Karl, and Gladney.

³ References to “FOA” refer to the final office action dated August 29, 2023, which is reprinted in the evidentiary appendix starting at A22.

Application 90/014,844

Each ground should be reversed for the following reasons:

First, Glasspec, which is relied on for all grounds, does not disclose a bed comprising a shell having a “bottom” and “a plurality of mounting flanges” as claimed. In particular, Glasspec discloses open-shell beds (one of which may have an unspecified “enclosed bottom”) which are unlike the closed-shell beds that are claimed. Also, Glasspec discloses a different mounting flange than what is claimed.

Second, Auburn, Karl, and Gladney each concern disparate and incompatible products relative to the open-shell fiberglass beds of Glasspec, and thus there is no motivation and no reasonable likelihood of success to combine them with Glasspec or each other.

Third, regarding grounds 3 and 4, Glasspec and Karl do not disclose storage compartments as claimed in claims 2 and 3.

As described below, each of the foregoing reasons is an independent reason to reverse the applicable grounds for rejection, and the first two grounds are independent reasons to reverse all grounds for rejection.

a. All 35 U.S.C. § 103 grounds for rejection (grounds 1-4) should be reversed because Glasspec does not disclose a bed having a shell with a “bottom” and “mounting flanges” as claimed.

In ground 1 for rejection, the examiner concluded that:

- One bed shown in Glasspec discloses a shell having a “bottom” as well as a top, two side walls, and two end walls. FOA at 6 (A28), referring to the bed shown in Glasspec at page 8 (A58).
- Two *different* beds shown in Glasspec disclose a shell having “mounting flanges ... disposed in the at least one end wall adjacent the bottom” and “disposed in the first side wall adjacent the bottom.” FOA at 8 (A30), referring to the bed

Application 90/014,844

shown in Glasspec at page 4 (A54); *see also* FOA at 9-10 (A31-A32; stating that the bed on Glasspec page 7 (A57), “includes mounting flanges in the side walls and end walls with bolt holes therethrough.”).

- It would be obvious to combine the features of these beds: “From the teachings provided by bed 4 and bed 7 of Glasspec, those of ordinary skill in the art at the time of filing would have found it obvious to provide the bed 8 with the mounting flanges having bolt holes extending through the bottom to secure the bed 8 to the floor. Providing mounting flanges on the bed 8 would yield the predictable result of facilitating the use of bolts to secure the bed to the floor, as shown and taught by bed 4 and bed 7.” FOA at 11 (A33).

Norix respectfully submits that each part of the above analysis is wrong. When construed as a whole and limited to what is shown and what can reasonably be inferred, Glasspec does not disclose *any* bed with a single shell having a “bottom” as claimed. (Rather, Glasspec shows only open-shell beds missing one or more surfaces, one of which may have an unspecified “enclosed bottom” added to it.) Glasspec also does not disclose *any* bed with a shell having mounting flanges disposed *in* the side or end walls *adjacent* the bottom and having a bolt hole *extending through* the bottom, as is claimed. (Rather, Glasspec shows mounting flanges only in the bottom—indeed, the flange in Glasspec *is* the bottom of those beds.) Moreover, even if Glasspec disclosed *different* beds having a shell with the claimed “bottom” and the “mounting flanges” shown in Glasspec, it would not be *possible*, let alone obvious, to combine them into a single bed, because the mounting flanges in Glasspec are different from what is claimed.

Application 90/014,844

Still further, the examiner's analysis in the reexaminations of the claims of the '933 patent supports reversal of the rejections here. As described below, the analysis in the '933 patent reexaminations confirms that the beds with the simple flange shown in Glasspec do not render obvious beds like those in the '933 patent and the '150 patent, which claim a more complex means of fastening the bed to the floor.

Finally, as described below, additional claim limitations in claim 1 distinguish the closed-shell beds claimed from the open-shell beds in Glasspec, and claims 15 and 16 have yet additional limitations that do so.

The foregoing analysis is the only basis for concluding that a bed with "mounting flanges" as claimed is obvious. This analysis is incorporated into all other grounds for rejection. *See* FOA at 12 (A34; ground 2), 13 (A35; ground 3), 15 (A37; ground 4). Thus, finding an error here justifies reversal of all grounds of rejection without going further.

i. Glasspec depicts three different beds, none of which comprises a shell having a top, four sides, a bottom, and mounting flanges in the side and end walls adjacent the bottom, as claimed.

Here, as described in the following sections, two claim limitations present in all challenged claims, a "bottom" and a "plurality of mounting flanges," cannot be found in Glasspec. Thus, the claimed subject matter as a whole cannot be found to be obvious.

The legal standard for proving obviousness is well established and requires all claim limitations to be considered. A claimed invention is unpatentable as obvious "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter *as a whole* would have been obvious at the time the invention was made to a

Application 90/014,844

person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103(a) (pre-AIA; emphasis added). The relevant considerations in determining obviousness include “the scope and content of the prior art” and “the differences between the claims and the prior art.” *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1360 (Fed. Cir. 2012) (citing *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 (1966)). It is “a basic principle of claim interpretation” that a claim must be read as a whole, including all claimed limitations for the purpose of an analysis of obviousness. *See In re Gulack*, 703 F.2d 1381, 1385 (Fed. Cir. 1983).

The standards for construing prior art and the claims also are well established. With respect to prior art, each prior art reference must be evaluated in its entirety, and all of the prior art must be evaluated as a whole. *See Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.*, 796 F.2d 443, 448 (Fed. Cir. 1986) (“It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one skilled in the art.”); *see also W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1550 (Fed. Cir. 1983); *In re Kuderna*, 426 F.2d 385, 390 (CCPA 1970). Moreover, prior art only teaches what it specifically discloses and the inferences that would be reasonable for a person with ordinary skill in the art to draw from those disclosures. *See Application of Preda*, 401 F.2d 825, 826 (C.C.P.A. 1968).

Regarding the claim terms, the words of a claim must be interpreted in the context of the claim in which they are found, and further in the broader context of the other claims and the remainder of the patent. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005); *see also Innova/Pure*

Application 90/014,844

Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1115 (Fed. Cir. 2004); *Interactive Gift Exp., Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1332 (Fed.Cir.2001) (citing *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed.Cir.1996)). The USPTO gives claim language the broadest reasonable interpretation, but “claims should always be read in light of the specification and teachings in the underlying patent.” *In re Suitco Surface, Inc.*, 603 F.3d 1255, 1259 (Fed. Cir. 2010).

Applying these legal standards to the analysis of Glasspec, Glasspec is a catalog that contains images and product descriptions of various items of “institutional furniture” (Glasspec at 1, A51) including three different beds referenced by the examiner: the bed at Glasspec page 4 (A54) (“Glasspec Bed 4”), the bed at Glasspec page 7 (A57) (“Glasspec Bed 7”), and the bed at Glasspec page 8 (A58) (“Glasspec Bed 8”). Each bed is described separately below:

a. Glasspec Bed 4

Glasspec Bed 4 is a bed that lacks at least one of the claimed end walls or side walls and lacks a bottom as claimed. The mounting flanges in Glasspec Bed 4 are not “disposed in” a side or end wall “adjacent” the bottom with a bolt hole “extending through” the bottom as claimed. Rather, a person with ordinary skill in the art would construe Glasspec Bed 4 as an open shell that must be fastened to the walls and/or floor via a simple mounting flange consisting of a single layer of the shell that also *is* the bottom of the shell of Glasspec Bed 4.

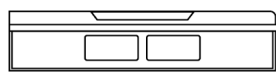

We know this for three reasons. *First*, this is all that is shown in the only image we have of Glasspec Bed 4 (A54):

Application 90/014,844



The image shows a top, one side wall, one end wall, and flanges flaring outward from the side and end wall and the top. The mounting flange having bolt holes extending through the bottom *is* the bottom, and no part of this flange is “disposed in” a side or end wall. (There are also flanges along the other edges of the shell, but these do not have the claimed bolt holes extending through the bottom.)

Second, the description of Glasspec Bed 4 on Glasspec page 5 (A55) confirms that what you see is what you get:

| | | | | | | |
|---|--|--|---------------|--------------|---------------|---------------|
|  | | Right Corner Wall Mounted Bed | | | | |
| | | MODEL | HEIGHT | WIDTH | LENGTH | WEIGHT |
| | | 803221 RC | 21" | 32 1/2" | 80" | 100 lbs |
| | | Mattress Platform | | 30" | 76" | |
| | | Storage Compartments 10" high 18" wide 12" deep | | | | |
| | | Upper bunk with ladder available 58" H, 60 lbs. | | | | |
|  | | Left Corner Wall Mounted Bed | | | | |
| | | MODEL | HEIGHT | WIDTH | LENGTH | WEIGHT |
| | | 803221 LC | 21" | 32 1/2" | 80" | 100 lbs |
| | | Mattress Platform | | 30" | 76" | |
| | | Mirror image of the 803221 RC, above | | | | |
| | | Upper bunk with ladder available 58" H, 60 lbs. | | | | |
| | | Wall Mounted Bed | | | | |
| | | MODEL | HEIGHT | WIDTH | LENGTH | WEIGHT |
| | | 803221 C | 21" | 32 1/2" | 80" | 100 lbs |
| | | Mattress Platform | | 30" | 76" | |
| | | Storage Compartments 10" high 18" wide 12" deep | | | | |
| | | Has three enclosed sides and mounts to one wall. | | | | |

It describes three variations of Glasspec Bed 4, two corner-mounted beds and one wall-mounted bed, and, with respect to the wall-mounted variation, it states that the bed “[h]as *three* enclosed sides and mounts to one wall.” Glasspec at 5 (A55, emphasis added). At the bottom of the page (not shown

Application 90/014,844

above) the description further admonishes that all variations “must be fastened to walls and/or floor.” *Id.*

Third, the only reasonable inference that can be made about Glasspec Bed 4 is that what you see is what you get. If there were additional side walls and a bottom as claimed, then the beds could be free standing and would not have to be “fastened to walls and/or floor.” If the wall-mounted version has only “three enclosed sides,” it is reasonable to infer that the corner-mounted versions also have at most three enclosed sides (and could have fewer). This is in marked contrast to the claimed invention, which has walls on all four sides and thus can be located anywhere in a room.

b. Glasspec Bed 7

Glasspec Bed 7 is a bed that lacks a bottom as claimed, and it has no mounting flanges disposed in any wall. Rather, Glasspec Bed 7 is an open shell that must be fastened to the floor via a simple mounting flange that *is* the bottom, consisting of a single layer of the shell.

We know this because this is all that is shown or described of Glasspec Bed 7, and it is not reasonable to make any further inferences:



The image of Glasspec Bed 7 (A57) shows a top, one side wall, one end wall, and a bottom consisting of a narrow part of the shell flaring outward from the side and end wall. A matching second side wall and end wall can

Application 90/014,844

be inferred from the description stating that “it is enclosed on all four sides.” *Id.* The only mounting flange having bolt holes extending through the bottom *is* the bottom, and no part of this flange is “disposed in” a wall.

Nothing in the description suggests that the Glasspec Bed 7 has an “enclosed bottom” of any kind, despite that Glasspec mentions such a feature in reference to Glasspec Bed 8, as described below. Construing Glasspec as a whole, as one must, and thus in conjunction with the description of Glasspec Bed 8 and also the open-shelled Glasspec Bed 4, it is only reasonable to assume that again, what you see is what you get: Glasspec Bed 7 is an open-shell bed having the same type of flange as shown in Glasspec Bed 4. *See Bausch & Lomb, Inc.*, 796 F.2d at 448; *W.L. Gore & Assocs., Inc.*, 721 F.2d at 1550; *In re Kuderna*, 426 F.2d at 390; *Application of Preda*, 401 F.2d 825 at 826.

c. Glasspec Bed 8

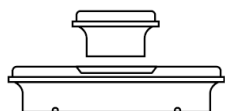
Glasspec Bed 8 is a free-standing bed that lacks visible mounting flanges of any kind. Glasspec claims it is “molded in one piece” and can be fastened to the floor. It comes in two variations, one with an “enclosed bottom” and one without. It is not known whether the “molded in one piece” description encompasses the “enclosed bottom” of the second variation of the bed. The “enclosed bottom” is not shown, and how the bottom is “enclosed” is not described and cannot be reasonably inferred. The bottom could be a plate that is fastened to the bottom of an otherwise open shell.

Again, this is all that is shown or described of Glasspec Bed 8 and all that is reasonable to infer:

Application 90/014,844



The image of Glasspec Bed 8 (A58) shows a top, one side wall, and one end wall. A matching second side wall and end wall can be inferred from the description describing it as a “free-standing closed sides bed” and as having “fully enclosed sides.” Glasspec at 8 (A58). The description states that “it can be weighted or bolted to the floor to restrict its mobility,” but the image clearly shows no mounting flanges of any kind. *Id.* The option of an “enclosed bottom” can be inferred only from the description of one of two variations as having an “enclosed bottom”:



Platform, Free-Standing Bed

| MODEL | HEIGHT | WIDTH | LENGTH | WEIGHT |
|-------------------|--------|-------|--------|---------|
| 37916 B | 16" | 36" | 79" | 95 lbs |
| 37916 B/E* | 16" | 36" | 79" | 110 lbs |
| Mattress Platform | | 33" | 76" | |

* Enclosed Bottom

Id. No further description of the “enclosed bottom” exists.

Contrary to the office action, it is not reasonable to infer that the “enclosed bottom” variation has *one* shell having a top, four walls, *and* a bottom, as opposed to (for example) an open shell with a separate plate that “encloses” the bottom. This is so for at least two reasons. *First*, none of the other Glasspec beds has a shell that is closed on all sides. If Glasspec could make such a bed, one would expect them to do so. For example, as described above, one closed-shell version of Glasspec Bed 4 could replace all three

Application 90/014,844

variations of the actual open-shell Glasspec Bed 4, because such a bed could be positioned in any corner or along the wall. Again, Glasspec must be considered as a whole. *See Bausch & Lomb, Inc.*, 796 F.2d at 448; *W.L. Gore & Assocs., Inc.*, 721 F.2d at 1550; *In re Kuderna*, 426 F.2d at 390; *Application of Preda*, 401 F.2d 825 at 826.

Nothing in Glasspec precludes “enclosed bottom” from meaning that the bottom is enclosed by fastening a plate along the bottom of an otherwise open shell. For example, claim 6 of the ’150 patent, which was found to be patentable as amended in the ’485 reexamination and is not challenged here, claims a “bottom plate on the bottom of the outer shell,” which is shown in Figure 4 as element 39 (*see* 4:20-24). Critically, the “bottom plate” of Claim 6 *is in addition to* “the bottom of the outer shell” (element 34 in Figure 4). In contrast, the “enclosed bottom” option in Glasspec Bed 8 is the only reference made to the “bottom” of that bed, allowing Glasspec Bed 8 to be an open shell lacking a bottom as claimed and optionally “enclosed” by a “bottom plate,” unlike what is claimed in claim 1.⁴

In sum, the only bed in Glasspec that has an “enclosed bottom” is one variation of Glasspec Bed 8, and the only information that Glasspec provides about that bottom is that it is an option of that bed and is “enclosed.” To

⁴ Conflating “the bottom of the outer shell” (element 34) with a “bottom plate” (element 39) would construe the bottom of the shell so broadly as to render the “bottom plate” of claim 6 meaningless, which is contrary to well established principles of claim construction. *See Akzo Nobel Coatings, Inc. v. Dow Chem. Co.*, 811 F.3d 1334, 1340 (Fed. Cir. 2016) (interpretations rendering claim terms meaningless are disfavored); *see also Clearstream Wastewater Sys., Inc. v. Hydro-Action, Inc.*, 206 F.3d 1440, 1446 (Fed. Cir. 2000) (Under the doctrine of claim differentiation, “it is presumed that different words used in different claims result in a difference in meaning and scope for each of the claims.”).

Application 90/014,844

infer that the “enclosed bottom” is part of the same shell as the top and all sides requires one to apply the general description of Glasspec Bed 8 as “molded in one piece” to *both* variations of the bed, which is not a reasonable inference in light of Glasspec as a whole. In any event, *none* of the beds in Glasspec have a mounting flange disposed in a wall adjacent the bottom with a bolt hole extending through the bottom as claimed.

ii. The mounting flange shown on Glasspec pages 4 and 7 not only is in the wrong location, but it is a different, simpler type of flange than the one that is claimed.

Contrary to the office action, Glasspec fails to disclose mounting flanges on Glasspec Bed 4 and Glasspec Bed 7 “disposed in” the side or end wall of those beds. FOA at 8-10 (A30-A32). Moreover, the disclosed mounting flanges are fundamentally different from the claimed mounting flange. As described below, the bolt hole in the claimed mounting flange passes through the shell *twice* (once through the fastener pocket in the wall and once through the bottom of the shell), while the bolt hole in the Glasspec flange passes through the shell only *once*.

A “mounting flange” as described in the specification has a top surface (the “top side”) in the “fastener pocket,” which is “formed in the outer walls” of the shell (4:35-36), and a bottom surface (the “bottom side”) in the “bottom surface” of the shell:

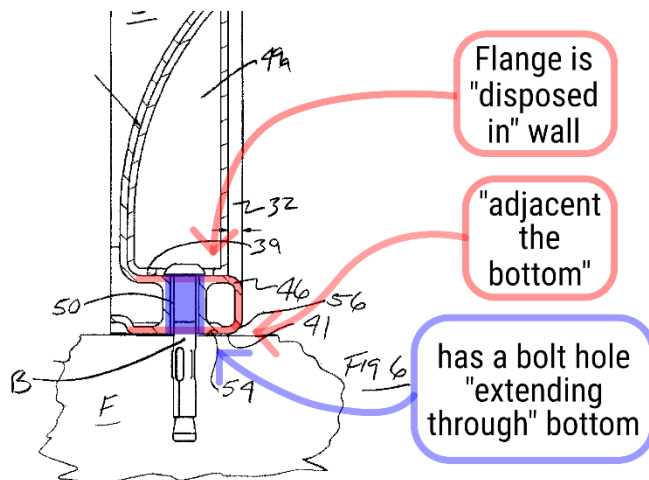
“The mounting flange 46 is formed in each of the fastener pockets 32 having a top side 39 in the fastener pocket 32 adjacent the contoured surface and a bottom side 41 on the bottom surface 34. The fastener hole 40 extends from the top side 39 to the bottom side 41 and is adapted to receive a

Application 90/014,844

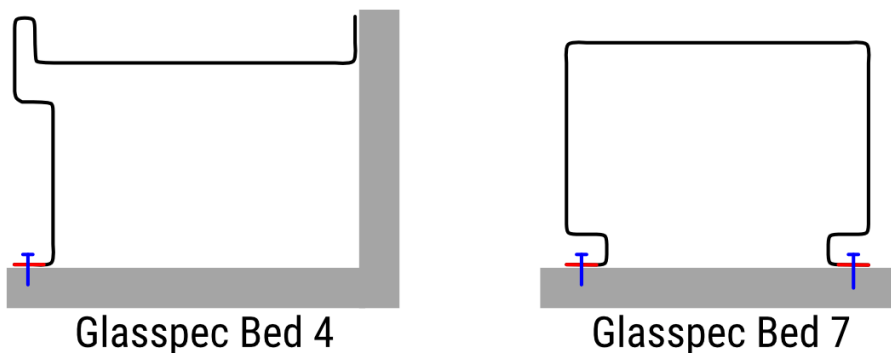
fastener such as a bolt extending through the mounting flange

for attachment to a structure such as the floor F.”

4:50-57. This is consistent with the claim language, which requires the mounting flange to be “disposed in” the side or end wall “adjacent the bottom” and to have a bolt hole “extending through” the bottom. This is also consistent with Figure 6 as shown in the annotated image below:



In contrast, Glasspec Bed 4 and Glasspec Bed 7 have flanges that have only one surface that is only in the “bottom” of those beds, as illustrated below:



The flanges of Glasspec Bed 4 and Glasspec Bed 7 that have a bolt hole “extending through” the bottom are *only* in the bottom of those beds. In contrast, the claimed mounting flanges are “disposed in” the side or end wall “adjacent the bottom,” and have a bolt hole “extending through” the bottom.

Application 90/014,844

Norix respectfully submits that the only ways the examiner could conclude that the flanges of Glasspec Bed 4 and Glasspec Bed 7 are “disposed in” a wall are: (1) if the examiner erroneously construed “mounting flange” to encompass the entirety of the “fastener pocket” (element 32), which is a structure that *makes space* for the “mounting flange 46,” or (2) if the examiner erroneously construed “bottom” to be the bottom of the wall in the sense that every physical object has a bottom. Neither construction is reasonable in light of the specification: the first would render “fastener pocket” redundant and would conflict with the fact that the mounting flange “is formed in each of the fastener pockets” (4:50-51); the second would construe “bottom” so broadly as to render it meaningless (every physical thing has a “bottom” in the broadest sense of the word). The claim terms must be interpreted in the context of the claim in which they are found, the specification, and the patent as a whole. *See Phillips*, 415 F.3d at 1312; *Innova/Pure Water, Inc.*, 381 F.3d at 1115; *Interactive Gift Exp., Inc.*, 256 F.3d at 1332; *In re Suitco Surface, Inc.*, 603 F.3d at 1259.

Thus, as described above, none of the beds in Glasspec have a mounting flange disposed in a wall adjacent the bottom with a bolt hole extending through the bottom as claimed.

iii. There is no justification to assume that the features of the three different beds in Glasspec could be combined, and it would be impossible to do so.

Even assuming that Glasspec Bed 8 is constructed from a single shell having a top, four walls, and a bottom as claimed (which Glasspec does not disclose), and further assuming that Glasspec Bed 4 and Glasspec Bed 7 disclosed the mounting flanges in the proper location (which they do not), nevertheless there is no justification for *combining* these features into a

Application 90/014,844

single bed as the examiner concluded it would be obvious to do. FOA at 11 (A33). In fact, it would be impossible to do so, because the problem with the flanges is not just the location but that a different type of flange is disclosed.

It should be emphasized that the problem with using Glasspec to render the claimed mounting flange obvious is not just the *location* of the flange. In addition to the flanges being located entirely in the bottom in Glasspec, the Glasspec flanges have *a different, simpler* structure than what is claimed. As illustrated above, because Glasspec Bed 4 and Glasspec Bed 7 are based on open shells, the bolt hole in the flange passes through the shell only once. In contrast, the “mounting flange” as claimed (“disposed in” a wall, “adjacent the bottom,” and having a bolt hole “extending through” the bottom), as described in the specification (4:50-57), and as shown in the drawings (*e.g.*, Fig. 6), is a more complex structure in which the bolt hole must pass through the shell twice. Thus, not only are the Glasspec flanges in the wrong location, but they are the wrong type of flange.

The omission in Glasspec of a single bed having both an “enclosed bottom” *and* mounting flanges is consistent with the inescapable geometric reality about beds made from shells: *the simple Glasspec flange will not work for a one-piece, closed shell*. This is because a flange with a bolt hole that passes through a shell only once, like the Glasspec flange does, can only lead to the inner chamber of a closed shell. A bolt inserted into such a hole cannot extend through the shell to fasten the shell to an exterior surface like the floor without passing through the shell at a second location, as the claimed mounting flange does.

No bed in Glasspec combines these features into a single bed. To the contrary, Glasspec Bed 8 plainly does not have any mounting flange in the shell. Further, Glasspec does not describe Glasspec Bed 7, which has a

Application 90/014,844

simple mounting flange in the bottom of that bed, as having the option of an “enclosed bottom” like Glasspec Bed 8. If Glasspec could have done so, one would have expected to see these features combined in Glasspec Bed 7 and Glasspec Bed 8.

Thus, there is no justification to combine the structures of the different beds in Glasspec as the examiner did here.

iv. The examiner in Ex Parte Reexaminations No. 90/014,516 and No. 90/014,852 of the '933 patent already determined that claims limited to the more complex means for mounting the bed to the floor described in the specification and drawings shared with the '150 patent are allowable over Glasspec.

The foregoing analysis is consistent with the outcome of the *ex parte* reexaminations of the claims of the '933 patent (A100-A118). The '933 patent has the same specification and drawings as the '150 patent and, like the '150 patent, has claims directed to intensive-use beds. (A118.) The '933 patent as originally granted has three independent claims (claims 1, 12, and 15). (*Id.*) As is relevant here, claim 1 of the '933 patent claims “a means for attaching the bed to a mounting surface in one of the first or second side wall” while claims 12 and 15 do not include means-plus-function language, but rather claim “a mounting hole in the bottom surface, a fastener in the mounting hole, the fastener extending through the bottom surface, the fastener attached to the floor.” (*Id.*) During the reexaminations, Norix added a new claim 16, which included the same means-plus-function language found in claim 1. *See* Reexam. Cert. No. 9,661,933 Cl (A119-A120).

In the reexaminations of the '933 patent, as here, the examiner considered Glasspec as prior art potentially rendering original claims 1, 12, and 15 and new claim 16 obvious. In those reexaminations, however, the

Application 90/014,844

examiner concluded that Glasspec did *not* render claim 16, with the means-plus-function language, obvious, because the means-plus-function language incorporated the structure of “a plurality of fastener pockets 32” into the claim. *See* 1/5/23 Office Action in Reexaminations No. 90/014,516 and No. 90/014,852 of the ’933 patent, at 11 (A133).⁵

Regarding claims 12 and 15, the examiner allowed the claims after they were amended as follows:

~~a mounting hole in the bottom surface, a fastener pocket in one~~
of the walls, a fastener hole in the fastener pocket, the fastener
pocket spaced from each of the plurality of openings, a fastener
~~in the mounting hole, the fastener~~ fastener hole and extending
through the bottom surface, the fastener attached to the floor

See Reexam. Cert. No. 9,661,933 Cl at 2 (A120; strikethrough and underlining added to show changes). As amended, the ’933 patent reexamination examiner concluded that Glasspec (and other prior art) “fails to disclose or suggest an intensive use bed” with the structures claimed:

“Claim 12 is patentable as amended because the prior art of record fails to disclose or suggest an intensive use bed having all the limitations as recited in Claim 12, including, ‘a fastener pocket in one of the walls, a fastener hole in the fastener pocket and extending through the bottom surface, a fastener in the fastener hole and extending through the bottom surface, the fastener attached to the floor.’”

⁵ The examiner ultimately concluded that claim 1 was allowable as well. *See* 8/4/23 Notice of Intent to Issue in Reexam. No. 90/014,516 and No. 90/014,852, at 3 (A140).

Application 90/014,844

8/4/23 Notice of Intent to Issue in Reexam. No. 90/014,516 and No. 90/014,852, at 3 (A140); *see also id.* (same holding for claim 15).

The outcome of the reexaminations of the '933 patent is relevant here because, while the '933 patent claims do not directly refer to a “mounting flange,” their reference to “a fastener pocket in one of the walls, a fastener hole in the fastener pocket, ... a fastener in the fastener hole and extending through the bottom surface” differs from Glasspec in the same way as the '150 patent “mounting flange” claim language does. Like the '150 patent claims, the '933 patent claims include a structure “in” the side or end wall (the “fastener pocket”) and a fastener “hole” “in” that structure and “extending through” the bottom of the bed. The fastener passes through the shell twice, as described above, not once as shown in Glasspec. The patentability of claims 12 and 15 of the '933 patent after the “fastener pocket” amendment confirms the patentability of claim 1 of the '150 patent *as-is*, because claim 1 already includes limitations (based on the location and structure of the “mounting flange”) that describe a structure having a hole that passes through the shell twice. Indeed, in the specification common to the patents, the “mounting flange 46 is formed *in each of the fastener pockets 32.*” 4:50-51 (emphasis added). In sum, the language added to '933 patent claims 12 and 15 *already exists* in the '150 patent claims (albeit expressed in terms of the “mounting flange,” not the “fastener pocket”).

Thus, the examiner in the '933 patent reexaminations concluded that original claim 1, amended claims 12 and 15, and new claim 16 were allowable over Glasspec and several other prior art references for the same reasons why the grounds for rejection should be reversed here: Glasspec does not disclose or suggest a flange that is both “in” a wall and has a hole “extending through” the bottom of the shell.

Application 90/014,844

- v. The limitations of claim 1 are more than sufficient to describe a shell having top, walls, and bottom oriented so as to form a generally enclosed space as opposed to an open shell. Nevertheless, claims 15 and 16 have additional limitations that distinguish open-shell beds.***

At times Norix has confronted the contention (chiefly from the Requester, Norix's opponent in litigation) that the limitations of claim 1 do not preclude the possibility of alternative configurations which might result in claim 1 encompassing open shells like those found in Glasspec. Such constructions are not reasonable, as explained below.

At the outset, such claim constructions find no support in the specification or drawings, which do not describe or depict such open-shell beds. It is well established that the broadest reasonable construction of claim terms must be consistent with the specification. *In re Suitco Surface, Inc.*, 603 F.3d at 1259. In addition, as described in detail above, the mounting flanges as claimed require the flange to be "disposed in" a wall "adjacent the bottom" and to have a bolt hole "extending through" the bottom. Such a flange is incompatible with an open shell, which has a different, simpler flange entirely in the bottom and a bolt hole that passes through the shell only once, as opposed to twice for the claimed flanges.

Still further, however, the additional claim limitation in claim 1 of a "recessed pocket" in the bottom precludes such pathological claim constructions. Specifically, it is impossible for the "bottom" of Glasspec Bed 4 or Glasspec Bed 7 to have a "recessed pocket" in it, as is claimed in claim 1. Even if one were to imagine the bottom of these beds as having a "pocket" at all (which is difficult), it can *never* have a "recessed pocket,"

Application 90/014,844

because what is on the other side of the bottom of Glasspec Bed 4 and Glasspec Bed 7 is *not* the bed interior, but rather the floor.

Norix respectfully submits that this is what the examiner during the '485 reexamination found significant when she concluded that "Glasspec does not provide clear evidence of a recess in the bottom":

"Glasspec does not provide clear evidence of a recess in the bottom. It would have been obvious to one of ordinary skill in the art to have the bottom form an opening in the bottom but it would not have been obvious to one of ordinary skill in the art to have the bottom form a recess as argued by the Patent Owner."

See 7/2/21 Notice of Intent to Issue in Reexam. No. 90/014,485, at 3 (A167). Norix submits that it was not merely the absence of some prior art showing a bottom with a recessed pocket that caused the examiner to conclude that all claims were allowable during the '485 reexamination. Rather, the limitation of a recessed pocket in the bottom (among other things) sufficiently distinguished the prior art open-shell beds shown in Glasspec, for example Glasspec Bed 4 and Glasspec Bed 7, from the claimed invention. The two kinds of beds have different fundamental geometries. Thus, a combination of Glasspec plus other prior art (for example, Davis, as considered in the '485 reexamination) does not render the '150 patent claims obvious:

"While Glasspec and Davis disclose all of the elements, the evidence on record does not disclose a rationale for using a molded expanded polystyrene bed assembly inside the enclosure of Glasspec to achieve a bottom with a recess.

Therefore, it would not have been obvious to one of ordinary

Application 90/014,844

skill in the art at the time of the invention to combine Glasspec and Davis to achieve the claims.”

Id. at 4 (A168). Here, like in the ’485 reexamination, the open-shell beds of Glasspec do not *themselves* render the ’150 patent claims obvious, and their open-shell construction prevents them from being blindly combined with other prior art, such as prior art associated with closed-shell beds, to make up for their shortcomings.

Finally, even if claim 1 alone was not sufficient to adequately describe the orientation of the top, walls, and bottom of the claimed shell so as to distinguish the beds in Glasspec, Norix added claim 15 and claim 16 during the ’485 reexamination to further limit claim 1 in ways that preclude any possibility of describing an open shell. Specifically, claim 15 adds the limitation that “the outer shell defines an inner chamber,” and claim 16 further adds the limitation that “the outer shell is one piece.” Thus, even if claim 1 were to be found to encompass open-shell beds, claims 15 and 16 should nevertheless be allowed. Norix emphasizes that claim 1 already has more than sufficient claim language to describe the orientation of the top, walls, and bottom, as described above in detail.

In sum, for all of the foregoing reasons, grounds 1-4 should be reversed because Glasspec does not disclose a bed comprising a shell with a “bottom” and “mounting flanges” as claimed.

Application 90/014,844

b. All 35 U.S.C. § 103 grounds for rejection (grounds 1-4) should be reversed because Glasspec, Auburn, Karl, and Gladney each describe disparate products for which there is no motivation or reasonable expectation of success to combine.

Furthermore, as described in the sections below, each prior art reference describes a disparate product for which there was no motivation to combine, and several references teach away from such combinations so that there could be no reasonable expectation of success.

i. Motivation to combine and a reasonable expectation of success in doing so are required for a claim to be obvious.

Even if all the claim limitations could be found in the combinations of prior art that the examiner asserts as the bases for the rejections—which as stated above they cannot—that alone would not be sufficient to render the claims obvious. For a claim to be obvious, it must be established also that “a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.” *Kinetic Concepts, Inc.*, 688 F.3d at 1360, citing *Procter & Gamble Co. v. Teva Pharm. USA, Inc.*, 566 F.3d 989, 994 (Fed. Cir. 2009); *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 415, 419 (2007).

Here, motivation to combine and a reasonable expectation of success are lacking not only because the prior art describes different types of products (beds, cots, chairs, and mattress foundations), but because the underlying construction of the products is different. Specifically, both

Application 90/014,844

Auburn and Karl have a closed-shell construction, which as described above is fundamentally different from the open-shell beds of Glasspec.⁶

The examiner relies on Glasspec as the base prior art reference for each rejection of the challenged claims based on obviousness. FOA at 20 (A42; “Auburn is clearly not the base reference”); FOA at 21 (A43; “Note again that Auburn is not the base reference and is not being modified”); FOA at 22 (A44; “Karl is not the base reference and is not being modified”); FOA at 23 (A45; “It should be noted that Gladney is not the base reference as set forth in the rejection. ... it is noted yet again that Karl is not the base reference.”); FOA at 24 (A46; “Karl is not the base reference”). Thus, Norix will approach the question of whether there is motivation to combine or a reasonable expectation of success assuming a person of ordinary skill in the art begins with the beds in Glasspec and seeks to add elements from Auburn, Karl, and/or Gladney.

ii. Glasspec describes fiberglass intensive-use beds comprising generally open shells having, at most, simple flanges along the edges of an open shell.

As described above, the beds described in Glasspec have open shells and, with the possible exception of one bed that has an “enclosed bottom” variation, are missing a “bottom” and/or one or more “walls” as claimed. As explained above, the structure of the “enclosed bottom” of Glasspec Bed 8 is not known. Glasspec also discloses a simpler mounting flange than is claimed, which is not compatible with closed-shell beds. In addition,

⁶ Gladney describes a mattress foundation lacking a bottom and having extensive internal structure, and so perhaps is best described as having no shell. In any event, it contributes only “generally vertical” support ridges to the obviousness analysis, relative to claim 7. FOA at 12-13 (A34-A35).

Application 90/014,844

Glasspec describes fiberglass construction beds (Glasspec at 2, A52) which are expressly distinguished from the invention claimed in the '150 patent. *See* 1:38-46; 8:58-61 (distinguishing fiberglass beds based on lack of durability and slow manufacturing requiring custom production).

iii. Auburn describes a molded plastic cot that is portable and stackable, and which lacks and teaches away from several claimed structures.

In contrast to Glasspec, Auburn describes “a one piece rotationally molded improved cot for toddler and other individuals which includes a recessed sleeping surface supported above a raised bottom wall by a plurality of upwardly extending pillars. ... The cots nest in stacked relation for storage in minimum space, while maximizing useable sleeping surface area.” Auburn at 1:46-57 (A73). Unlike Glasspec, the cot is formed as a single, closed shell. *Id.*, *e.g.*, at Fig. 3 (A69). Auburn does not refer to intensive-use beds or fiberglass construction beds as prior art, stating instead that “Prior art cots typically include a wood, steel, or aluminum frame with a cloth cover stretched thereover.” *Id.* at 1:23-24 (A73). Auburn also refers to a vacuum molded cot with “limited structural rigidity” and “exposed flange edges” that Auburn asserts are undesirable. *Id.* at 1:25-34 (A73). In contrast, Auburn describes the disclosed bed as being rotationally molded or alternatively blow molded from plastic. *Id.* at 2:61-3:3 (A73). The bottom of the bed is constructed via rotational or blow molding to form a hollow space between the bed and the floor for insulation and stacking purposes *Id.* at 4:1-22 (A74), and the bottom further has a plurality of “frusto conical pillars” extending upward from the “raised bottom surface” to provide additional support to the top surface of the bed. *Id.* at 3:9-18 (A74). The entire cot has a height of “about 4.25 inches” *Id.* at 2:53 (A74).

Application 90/014,844

The examiner rightly concluded that Auburn is not appropriate as a base reference. FOA at 20-21 (A42-A43). In contrast to Glasspec, Auburn describes a portable, stackable cot that has a height of less than six-inches off the ground. It has no means for fastening the cot to the floor and teaches away from such a feature given its portability and stackability.

The examiner erred, however, by concluding that a person with ordinary skill in the art starting with Glasspec would look to Auburn for any reason. Auburn describes a closed shell, rotationally molded plastic cot that stands less than 6-inches off the ground, while Glasspec describes open-shell, fiberglass, full-size, institutional use bed. In particular, to incorporate the bottom of the Auburn cot into Glasspec Bed 8, one would have to (1) change manufacturing methods from fiberglass to rotational or blow molding; and (2) discern some purpose for using Auburn's bottom in a full-sized intensive use bed. There is no reason to believe that a closed-shell construction as is possible through rotational or blow molding would be successful in Glasspec's fiberglass beds, and if a person of ordinary skill in the art would have attempted it, then they would have had to redesign the beds, including redesigning the mounting flanges previously used on the open-shell beds, without any guidance from the prior art.

iv. Karl describes a molded plastic chair.

Karl describes a "shaped one piece chair," preferably made by "a rotational molding process." Karl at 3:27-30 (A85). Karl makes no reference to fiberglass construction, and the chairs are based on a closed shell rather than an open shell as in Glasspec.

Again, the examiner rightly concluded that Karl is not plausible as a base reference given that it does not describe a bed (among other things), but the examiner erred by concluding that a person with ordinary skill in the art

Application 90/014,844

starting with Glasspec would look to Karl for any reason. The chair in Karl is a preferably rotationally molded plastic chair having a closed-shell construction. In particular, to incorporate the bottom of the Karl chair into Glasspec Bed 8, one would have to (1) change manufacturing methods from fiberglass or find a way to make closed shells using a fiberglass construction; and (2) discern some purpose for using Karl's chair bottom in an intensive use bed. As with Auburn, there is no reason to believe that a closed-shell construction as is possible through rotational molding would be successful in Glasspec's fiberglass beds, and if a person of ordinary skill in the art would have attempted it, then they would have had to redesign the beds, including redesigning the mounting flanges, without any guidance from the prior art.

v. Gladney describes a molded plastic mattress foundation.

Gladney describes a mattress foundation. Gladney at Figs. 1-4 (A91-A94). Gladney states that the embodiment described is made entirely from molded plastic but that "it will be understood by one of ordinary skill in the art that the systems described herein can be adapted to other plastic foundations, such as foundations formed of extruded and assembled plastic pieces, or composite foundations of plastic over non-plastic structural members (e.g., metal) or reinforced plastic (e.g., with glass or carbon fibers, or fillers)." *Id.* at ¶ 25 (A96). The mattress foundation has significant internal structure and no bottom surface. *Id.* at Figs. 2-3 (A92-A93). The only feature of the mattress foundation relied upon by the examiner is vertically oriented ribs along the side walls, to address dependent claim 7, which claims vertical support ridges. FOA at 12-13 (A34-A35).

Again, there is no motivation to combine Gladney's mattress foundation's molded plastic vertical ribs with the Glasspec beds' open-shell

Application 90/014,844

fiberglass construction. Notwithstanding Gladney's reference to plastic reinforced with glass fibers, there is no reason to believe that such ribs could be successfully incorporated into Glasspec's generally smooth-walled fiberglass beds. Notably, the Glasspec beds do not do so. Gladney does not show a closed shell, but also does not provide any guidance regarding the claimed mounting flanges or the shell having a bottom as claimed. All Glasspec shows is that it is possible to mold vertical ridges in plastic.

Thus, there is no motivation to combine the asserted prior art, and there is no reasonable expectation of success in doing so. The prior art does not merely concern different types of furniture, but different construction techniques. Norix respectfully submits that it is only with the benefit of hindsight and the disclosure of Norix's invention that it could be seen as "obvious" to transform the open-shelled fiberglass beds of Glasspec into the generally closed-shell intensive-use claimed beds having all claimed features. Such hindsight analysis is not proper in determining the patentability of the claims. *See, e.g., In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Pat. Litig.*, 676 F.3d 1063, 1071 (Fed. Cir. 2012) ("hindsight claims of obviousness" should be rejected). For this independent reason, all grounds for rejection should be reversed.

c. The 35 U.S.C. § 103 grounds for rejection 3 and 4 should be reversed because neither Glasspec Bed 7 nor Karl renders a bed having a storage compartment as claimed in claims 2 and 3 obvious.

In addition to the foregoing reasons for reversal, which apply to all grounds, grounds 3 and 4 additionally should be reversed because neither Glasspec Bed 7 nor Karl renders claim 2 or 3 obvious by disclosing a closed shell having a "storage compartment" as claimed in claim 2 and 3.

Application 90/014,844

Claims 2 and 3 have been addressed differently than other claims in the '150 patent. Specifically, during the '485 reexamination, the examiner determined that these claims were allowable over Glasspec and several other prior art references *before* concluding that the remaining claims of the '150 patent also were allowable. *See* 2/22/21 Office Action in Reexam. No. 90/014,485 at 13 (A157).

This has had two consequences for claims 2 and 3. First, for this reason, Norix amended these claims during the first reexamination to make them independent claims. Second, the examiner in the pending '844 reexamination concluded that Glasspec did not create a substantial new question of patentability regarding these claims, at least regarding “the use of Glasspec as proposed in the Request for the salient limitations of claims 2 and 3, in the same manner as Glasspec was used in the first reexamination.” FOA at 4-5 (A26-A27). Thus, the '844 examiner concedes that Glasspec cannot be reconsidered as a ground for rejecting claims 2 and 3 in the same way as it was asserted in the '485 reexamination. The '844 examiner has interpreted this to mean that the storage compartments shown in Glasspec Bed 4 cannot be considered as a ground for rejecting claims 2 and 3 as obvious. FOA at 13 (A35; “As noted above, limitations drawn to the storage compartments were found to be patentable over Glasspec, and bed 4 of this reference is not available for a teaching of these features.”).

The '844 examiner nevertheless concludes that Glasspec renders claim 2 and claim 3 obvious on the grounds that Glasspec *otherwise* discloses the claimed storage compartment limitation. FOA at 13-17 (A35-A39). The examiner reaches this result based solely on the space immediately above the flange in Glasspec Bed 7. FOA at 14 (A36). Additionally, the examiner cites to a recess in the chair shown in Karl where

Application 90/014,844

a sitting person's feet would be as additional support for the obviousness of claims 2 and 3. *Id.*

Contrary to the '844 examiner's contentions, neither Glasspec Bed 7 nor Karl renders claims 2 and 3 obvious, for two independent reasons, as set forth below.

i. Glasspec Bed 7, like Glasspec Bed 4, is an open-shell bed that is not analogous to the claimed invention.

First, regardless of how the space above the flange in Glasspec Bed 7 is construed by the examiner, Glasspec Bed 7 does not render claims 2 and 3 obvious for the same reasons that the examiner in the '485 reexamination concluded that Glasspec Bed 4 does not render those claims obvious. The relevant question is not simply whether Glasspec Bed 7 discloses a "storage compartment." The relevant question is whether Glasspec Bed 7, taken together with the other cited prior art references, renders claims 2 and 3 obvious as a whole. *See* 35 U.S.C. § 103(a); *Kinetic Concepts, Inc.*, 688 F.3d at 1360; *In re Gulack*, 703 F.2d at 1385. It does not, because like Glasspec Bed 4 it describes a fundamentally different, open-shell bed.

It is instructive to first consider Glasspec Bed 4, which the '844 examiner concedes the '485 examiner considered and rejected as a ground for rendering claims 2 and 3 obvious several months before the '485 examiner concluded that the remaining claims also were allowable. Glasspec Bed 4 shows two compartments in the side wall. In the description of the variations of Glasspec Bed 4, Glasspec refers to these structures as "storage compartments" and specifies that they are 10 inches high, 18 inches wide and 12 inches deep. Glasspec at 5 (A55). Thus, it was not for lack of a compartment that the '485 examiner concluded that claims 2 and 3 were not obvious over Glasspec Bed 4. To the contrary, it must have been *because*

Application 90/014,844

Glasspec Bed 4 is entirely different kind of bed than the claimed invention.

Glasspec Bed 4 depicts a storage compartment in an open shell without a bottom as claimed and without one or two walls. It is one thing to include a storage compartment in an open-shell bed; it is quite another thing to include a storage compartment in a closed-shell bed like the one claimed.

Based on the proper analysis, Glasspec Bed 7 fares no better than Glasspec Bed 4. First, Glasspec Bed 7 does not have a compartment like the one shown in Glasspec Bed 4. Nevertheless, Glasspec Bed 7, like Glasspec Bed 4, is an open-shell bed that lacks a bottom as claimed in claims 2 and 3. Even if Glasspec Bed 7 depicted a “storage compartment” (which, as discussed below, it does not), this would simply be another example of a bed like the one shown in Glasspec Bed 4.

None of the Glasspec beds, nor any other cited prior art, discloses a storage compartment in a closed-shell bed or renders such a bed obvious. To the contrary, the only closed-shell bed under consideration here is the cot in Auburn, which has no space for and does not suggest the possibility of storage compartments (or flanges). Thus, Glasspec Bed 7, like Glasspec Bed 4, at most discloses a compartment in a different, incompatible type of bed, which does not render the invention claimed in claims 2 and 3 obvious.⁷

ii. Neither Glasspec Bed 7 nor Karl discloses a “storage compartment.”

Second, the space above the flange in Glasspec Bed 7 and the space for feet in the front of the chair in Karl are not “storage compartments” as

⁷ It is also worth noting that the claims of the '933 patent, whose claims have been confirmed as patentable initially and after two reexaminations involving Glasspec, also claim a “storage compartment” in all independent claims (A118; A120).

Application 90/014,844

claimed in claims 2 and 3. By asserting that these structures are “storage compartments,” the examiner is construing “storage compartment” so broadly as to read “storage” out of the claims.

The word “storage” in “storage compartment” is not merely an “intended use,” (FOA at 15 (A37)) but rather it is a functional limitation on the structure “compartment.” Functional limitations must be evaluated and considered, just like any other claim limitation, for what they fairly convey to a person of ordinary skill in the pertinent art in the context in which it is used, and they need not be used in conjunction with 35 U.S.C. § 112(f). *See* MPEP § 2173.05(g); *K-2 Corp. v. Salomon S.A.*, 191 F.3d 1356, 1363 (Fed. Cir. 1999). Functional limitation language does not inherently render a claim improper, particularly if it clearly defines the scope or boundaries of the claim. *See In re Swinehart*, 439 F.2d 210, 212 (C.C.P.A. 1971); *In re Venezia*, 530 F.2d 956, 960 (C.C.P.A. 1976) (finding structural claim limitations precisely defined present structural attributes of interrelated component parts of the claimed assembly); *In re Barr*, 444 F.2d 588, 593, 595 (C.C.P.A. 1971) (finding a functional claim limitation acceptable because it set definite boundaries on the patent protection sought); *see also* MPEP § 2173.05(g).

Here, the nature of a “storage compartment” is clear from the context of the patent: it is a “compartment” capable of performing the task of “storage” of items that are typically stored in or near a bed, such as clothing, bedding, or books. Accordingly, the specification refers to one embodiment of the invention as having “a pair of storage openings 28 opening into the front surface 26,” which “has a gently sloped storage cavity floor 27 to prevent fluid collection and ease spray cleaning and drying.” 4:42-46. Figures 3 and 4 show the storage compartments at element 28.

Application 90/014,844

The space above the flanges in Glasspec Bed 7 and the space for the feet in the Karl chair are nothing like a “storage compartment” of a bed. The space referred to in Glasspec Bed 7 is not capable of performing the required storage task. This is confirmed by the fact that Glasspec does not refer to this space as a “storage compartment,” despite that Glasspec *does* refer to a larger compartment suitable for such storage in Glasspec Bed 4 as a “storage compartment.” The space where a sitting person’s feet would be in Karl also is not sufficient to perform the required task. The space in Karl is not even a “compartment” given that it does not have a bottom surface. For example, if the chair in Karl is moved backwards, items located in this space would remain where they were. If the space referred to in Karl was a “compartment,” then any overhanging structure would qualify as a compartment, which is contrary to the specification and effectively makes the term meaningless.

The examiner’s suggestion that *some* things could be stored in these spaces again makes the term “storage” so broad as to be effectively meaningless. FOA at 14-15 (A36-A37). *Every* compartment can be used to store *something*. To the contrary, the term storage compartment has a well-defined meaning to a person with ordinary skill in the art, as confirmed by the use of this exact term in relation to Glasspec Bed 4 to define a structure that is similar to the one shown in the specification (though in the context of a different type of bed).

It is also worth noting that the Requester, despite submitting hundreds of pages and numerous annotated drawings of Glasspec Bed 7 and Karl, has never once asserted that either discloses a “storage compartment” as claimed in claims 2 and 3.

Application 90/014,844

For the reasons stated above, grounds 3 and 4 for rejection of claims 2 and 3 should be reversed.

V. CONCLUSION

For all of the foregoing reasons, Norix respectfully requests that the Board reverse the rejections in the final office action dated August 29, 2023.

Dated: January 30, 2024

Respectfully submitted,

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Application 90/014,844

CLAIMS APPENDIX

1. An intensive use bed comprising a molded, non-penetrable outer shell having a generally horizontal top, a bottom, a pair of generally vertical end walls, a generally vertical first side wall, a generally vertical second side wall and a plurality of mounting flanges, each of the generally vertical end walls on the top, the first generally vertical side wall on the top, the first side wall attached to and between the pair of end walls whereby the end walls are in spaced relation and substantially parallel to each other, the second generally vertical side wall on the top, the second side wall attached to and between the pair of end walls, the bottom on the pair of generally vertical end walls, the bottom attached to the first and second side walls whereby the top and bottom are in spaced relation and substantially parallel to each other, each of the plurality of mounting flanges comprising a bolt hole extending through the bottom, one of the plurality of mounting flanges disposed in a first one of the pair of end walls adjacent the bottom, another one of the plurality of mounting flanges disposed in the first side wall adjacent the bottom, a first end support ridge in the first one of the pair of end

Application 90/014,844

walls, a first side support ridge disposed in the first side wall, a recessed pocket in the top, a recessed pocket in the bottom.

2. An intensive use bed comprising a molded, non-penetrable outer shell having a generally horizontal top, a bottom, a pair of generally vertical end walls, a generally vertical first side wall, a generally vertical second side wall and a plurality of mounting flanges, each of the generally vertical end walls on the top, the first generally vertical side wall on the top, the first side wall attached to and between the pair of end walls whereby the end walls are in spaced relation and substantially parallel to each other, the second generally vertical side wall on the top, the second side wall attached to and between the pair of end walls, the bottom on the pair of generally vertical end walls, the bottom attached to the first and second side walls whereby the top and bottom are in spaced relation and substantially parallel to each other, each of the plurality of mounting flanges comprising a bolt hole extending through the bottom, one of the plurality of mounting flanges disposed in a first one of the pair of end walls adjacent the bottom, another one of the plurality of mounting flanges disposed in the first side wall adjacent the

Application 90/014,844

bottom, a first end support ridge in the first one of the pair of end walls, a first side support ridge disposed in the first side wall, a recessed pocket in the top, a recessed pocket in the bottom, the intensive use bed further comprising a storage compartment in one of the generally vertical end walls, the first side wall or the second side wall.

3. An intensive use bed comprising a molded, non-penetrable outer shell having a generally horizontal top, a bottom, a pair of generally vertical end walls, a generally vertical first side wall, a generally vertical second side wall and a plurality of mounting flanges, each of the generally vertical end walls on the top, the first generally vertical side wall on the top, the first side wall attached to and between the pair of end walls whereby the end walls are in spaced relation and substantially parallel to each other, the second generally vertical side wall on the top, the second side wall attached to and between the pair of end walls, the bottom on the pair of generally vertical end walls, the bottom attached to the first and second side walls whereby the top and bottom are in spaced relation and substantially parallel to each other, each of the plurality of mounting flanges

Application 90/014,844

comprising a bolt hole extending through the bottom, one of the plurality of mounting flanges disposed in a first one of the pair of end walls adjacent the bottom, another one of the plurality of mounting flanges disposed in the first side wall adjacent the bottom, a first end support ridge in the first one of the pair of end walls, a first side support ridge disposed in the first side wall, a recessed pocket in the top, a recessed pocket in the bottom, the bed further comprising a storage compartment integrally molded into the molded outer shell.

4. The intensive use bed of claim 1, further comprising a ridge on the top, the ridge adjacent to the recessed pocket.

5. The intensive use bed of claim 1, wherein the molded outer shell further comprises a contoured outer surface.

7. The intensive use bed of claim 1, wherein the first contoured end support ridge and the first contoured side support ridge are oriented in a generally vertical orientation perpendicular to the top.

8. The intensive use bed of claim 1, further comprising a contoured, second end support ridge on a second one of the pair

Application 90/014,844

of end walls and a second side support ridge on the second side wall.

9. The intensive use bed of claim 8, wherein the first and second end support ridges are disposed in a generally horizontal orientation, the first and second side support ridges are disposed in a generally horizontal orientation.

15. The intensive use bed of claim 1, wherein the outer shell defines an inner chamber.

16. The intensive use bed of claim 15, wherein the outer shell is one piece.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | |
|---|------------------------------|
| Inventors: Richard B. Karl, Scott Karl, and Kurt Staskon | Group Art Unit: 3993 |
| Application No. 90/014,844 | Examiner: Russell D. Stormer |
| Filed: 08/27/2021 | Confirmation No. 4487 |
| Title: <i>Ex Parte</i> Reexamination of U.S. Pat. No. 10,507,150 | |

MAIL STOP APPEAL BRIEF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

EVIDENTIARY APPENDIX

TABLE OF CONTENTS

| <u>Document</u> | <u>Page</u> |
|---|--------------------|
| '150 Patent (U.S. Pat. No. 10,507,150 B2) | A1 |
| '150 Patent Reexam. Cert. (U.S. Pat. No. 10,507,150 C1) | A20 |
| 8/29/23 Final Office Action in Reexam. No. 90/014,844 | A22 |
| Glasspec (Ex. F to 8/27/21 Request for Reexam. by Third Party in Reexam. No. 90/014,844) (color copy) | A51 |
| Auburn (U.S. Pat. No. 5,490,292) | A67 |
| Karl (U.S. Pat. No. 5,857,742) | A78 |
| Gladney (U.S. Pat. Publ. 2004/0078897) | A90 |
| '933 Patent (U.S. Pat. No. 9,661,933 B2) | A100 |
| '933 Reexam. Cert. (U.S. Pat. No. 9,661,933 C1) | A119 |
| 1/5/23 Office Action in Reexam. No. 90/014,516 and Reexam. No. 90/014,852, merged | A121 |
| 8/4/23 Notice of Intent to Issue in Reexam. No. 90/014,516 and Reexam. No. 90/014,852, merged | A136 |
| 2/22/21 Office Action in Reexam. No. 90/014,485 | A143 |
| 7/2/21 Notice of Intent to Issue in Reexam. No. 90/014,485 | A163 |
| 10/27/21 Order Granting Request for Reexam. No. 90/014,844 | A170 |

(10) **Patent No.:** US 10,507,150 B2
(45) **Date of Patent:** Dec. 17, 2019

(58) **Field of Classification Search**

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USPC 5/200.1, 201, 308, 400, 503.1
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

| | | | | |
|--------------|------|---------|-------------------|----------------------|
| 4,110,854 | A * | 9/1978 | Sjolie | A47C 17/86 5/2.1 |
| 5,303,438 | A * | 4/1994 | Walker | A47D 15/008 5/110 |
| 5,458,409 | A * | 10/1995 | Sheng | A47F 3/063 29/434 |
| 2002/0124311 | A1 * | 9/2002 | Peftoulidis | A47C 17/86 5/308 |
| 2004/0078897 | A1 * | 4/2004 | Gladney | A47C 19/021 5/400 |

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Primary Examiner — Fredrick C Conley

(74) *Attorney, Agent, or Firm* — James D Palmatier;
Applied Patent Services

Related U.S. Application Data

(63) Continuation of application No. 13/450,508, filed on Apr. 19, 2012, now Pat. No. 9,661,933, which is a continuation of application No. 13/186,853, filed on Jul. 20, 2011, now abandoned, which is a continuation of application No. 11/868,308, filed on Oct. 5, 2007, now Pat. No. 8,007,059.

(51) **Int. Cl.**

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|-------------------|-----------|
| <i>A47C 19/00</i> | (2006.01) |
| <i>A61G 7/047</i> | (2006.01) |
| <i>A47C 19/22</i> | (2006.01) |
| <i>A47C 31/00</i> | (2006.01) |
| <i>A61G 7/05</i> | (2006.01) |

(52) U.S. Cl.

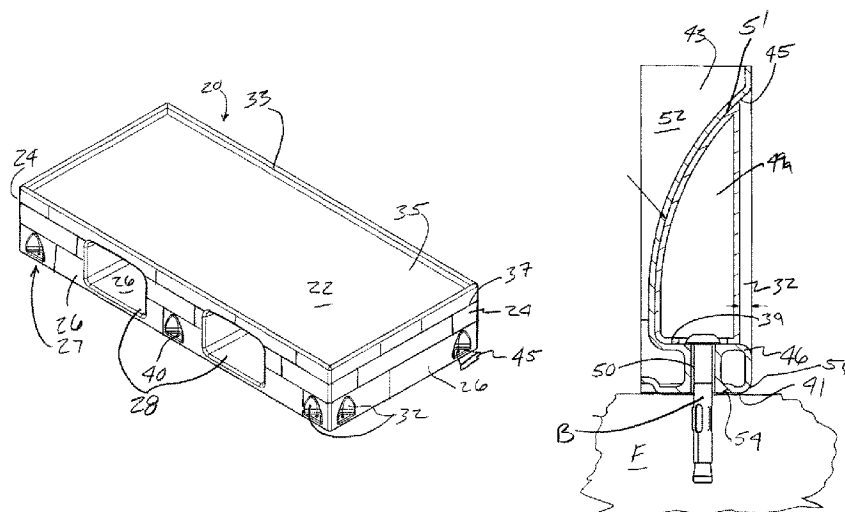
CPC **A61G 7/047** (2013.01); **A47C 19/22**
(2013.01); **A47C 31/00** (2013.01); **A61G 7/05**
(2013.01)

(57)

ABSTRACT

The invention is directed to an intensive use furniture component having a sealing connection on a mounting surface for sealingly attaching to a floor or wall to prevent liquid from seeping under or behind the furniture component. The furniture component is formed by an outer shell having a side wall extending generally perpendicular to the mounting surface. A mounting flange is disposed adjacent the sidewall. A bolt hole is formed in the mounting flange. The sealing connection comprises a caulk channel formed as a channel in the mounting surface for receiving a bead of caulk to fill the seam between the mounting surface and the wall or floor to prevent fluid from seeping past the caulk channel to a space adjacent the interior mounting surface.

14 Claims, 12 Drawing Sheets



US 10,507,150 B2

Page 2

(56)

References Cited

U.S. PATENT DOCUMENTS

2009/0091229 A1* 4/2009 Karl A47C 16/02
312/351.1

* cited by examiner

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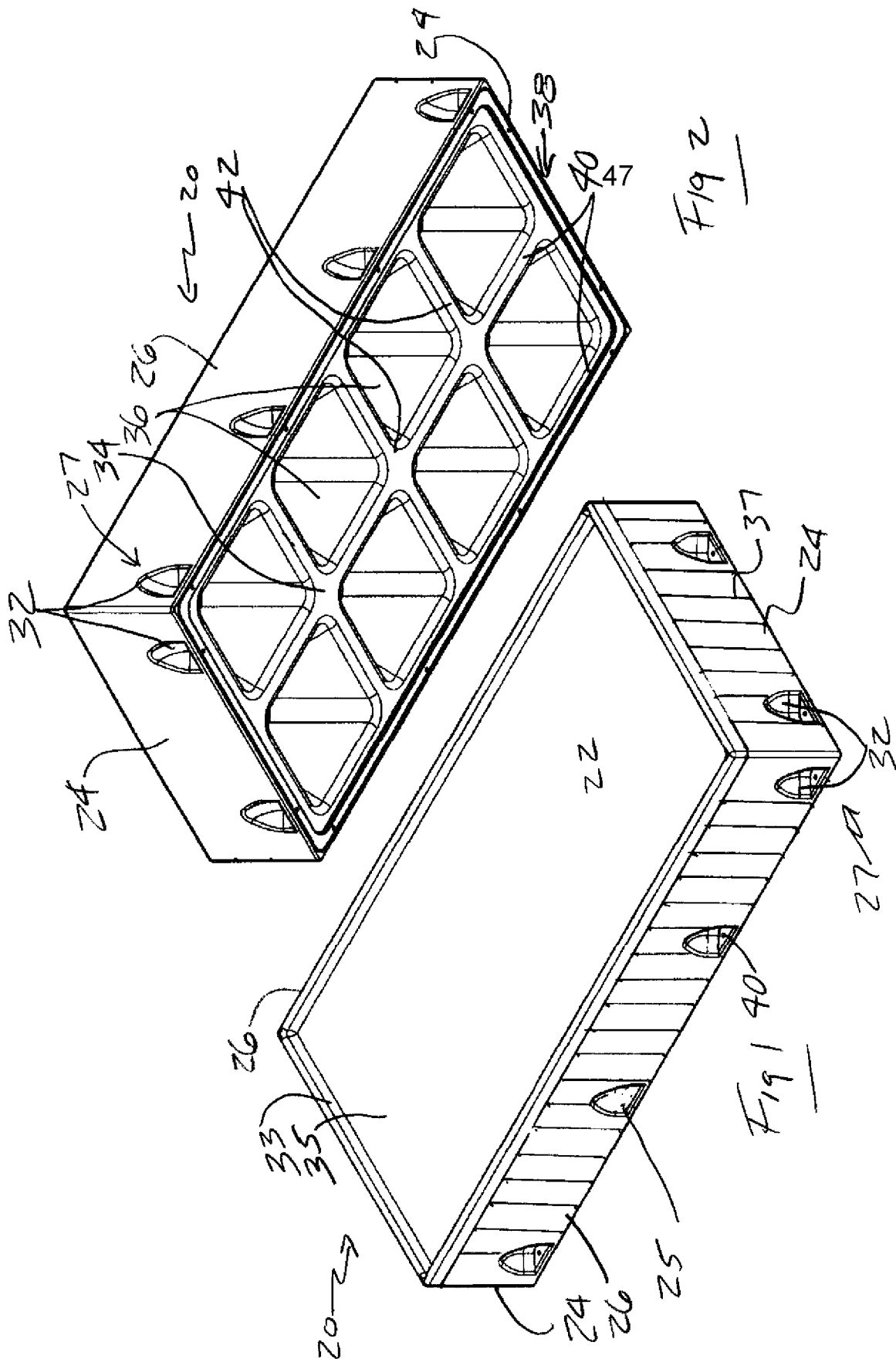
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U.S. Patent

Dec. 17, 2019

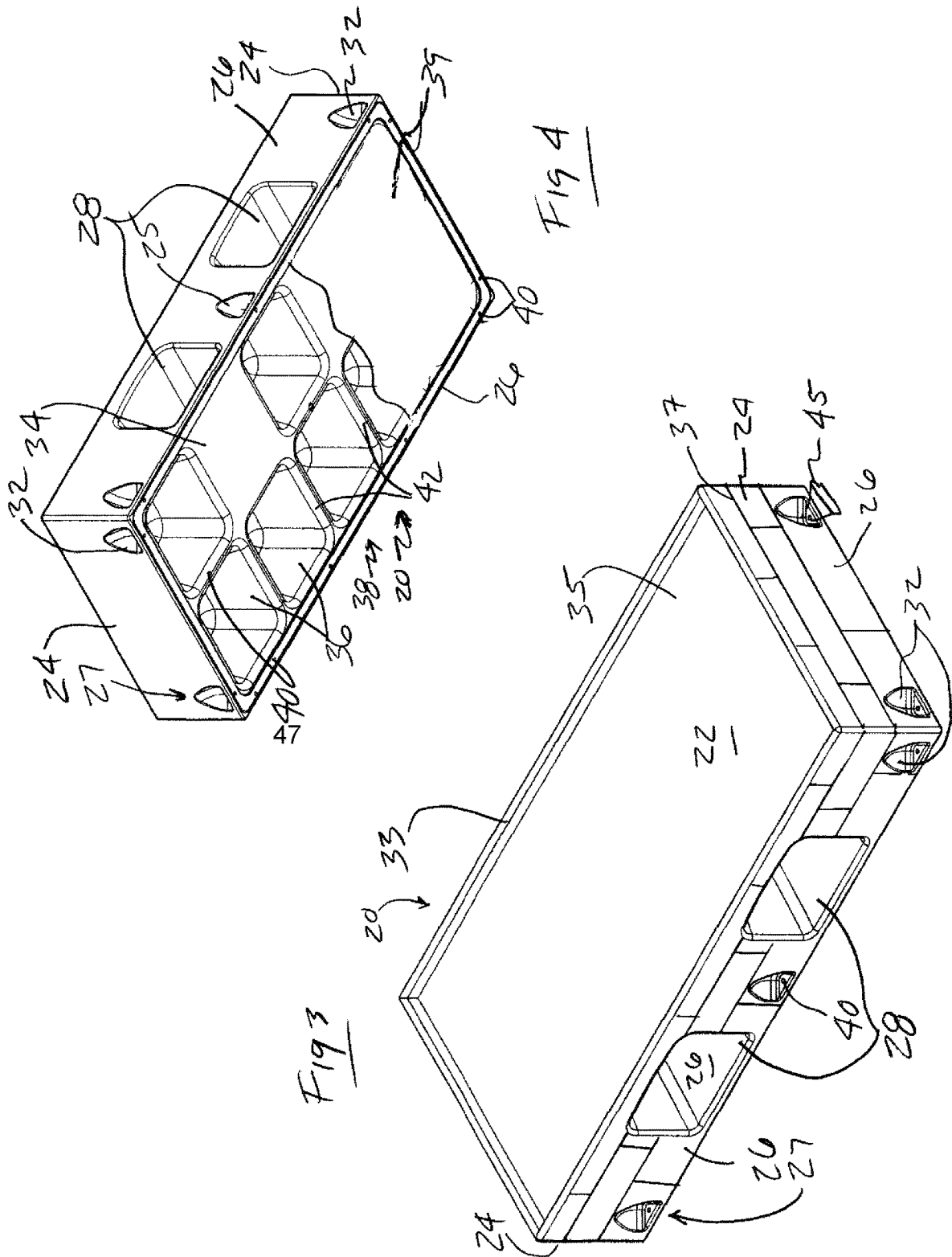
Sheet 1 of 12

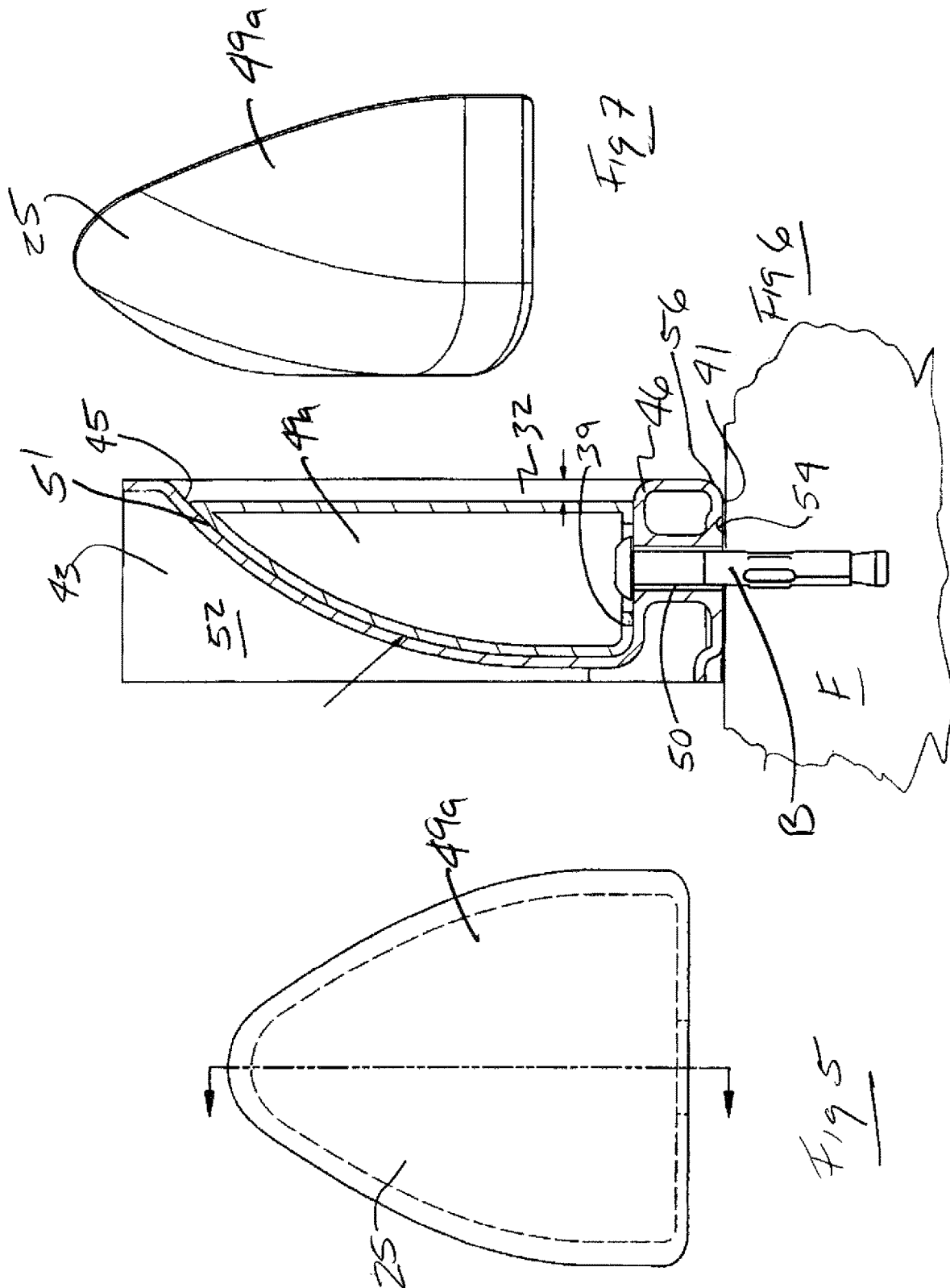
US 10,507,150 B2



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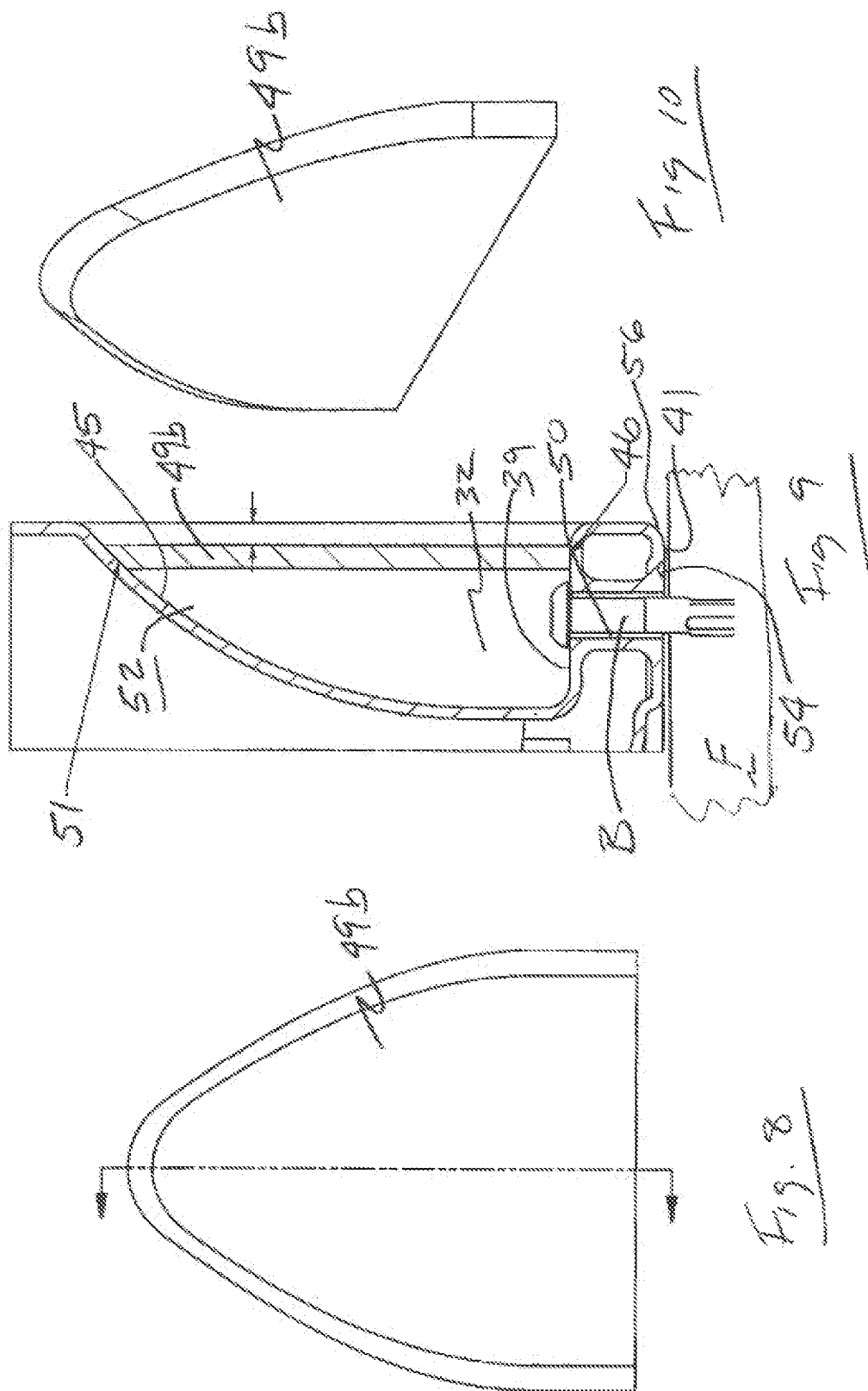


U.S. Patent

Dec. 17, 2019

Sheet 4 of 12

US 10,507,150 B2



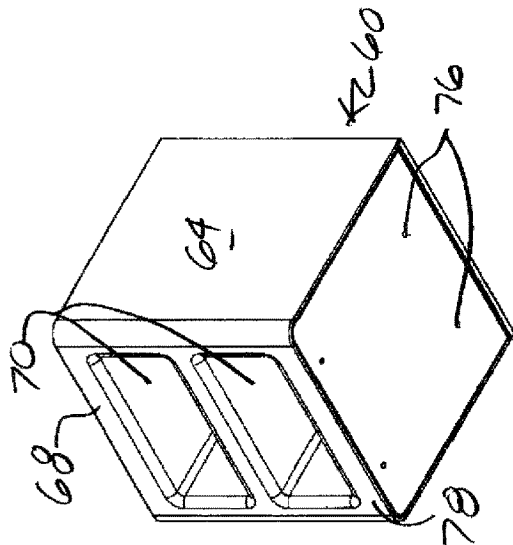


Fig. 12

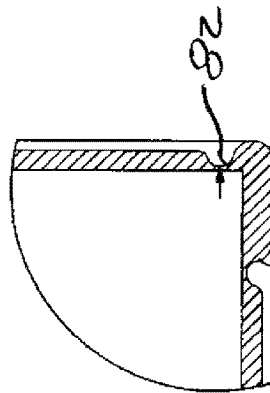


Fig. 14

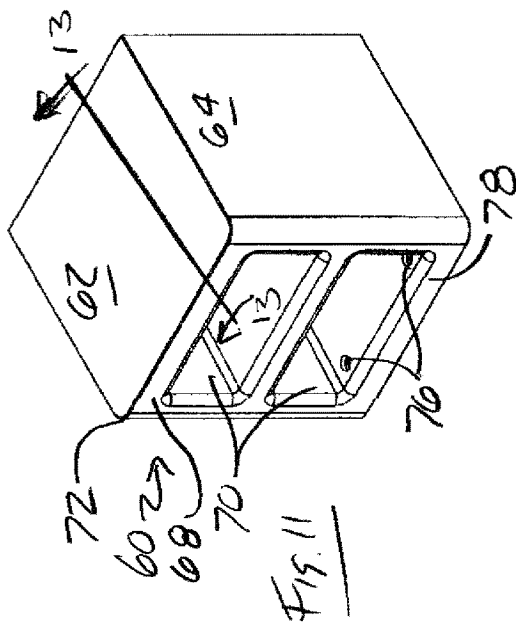


Fig. 11

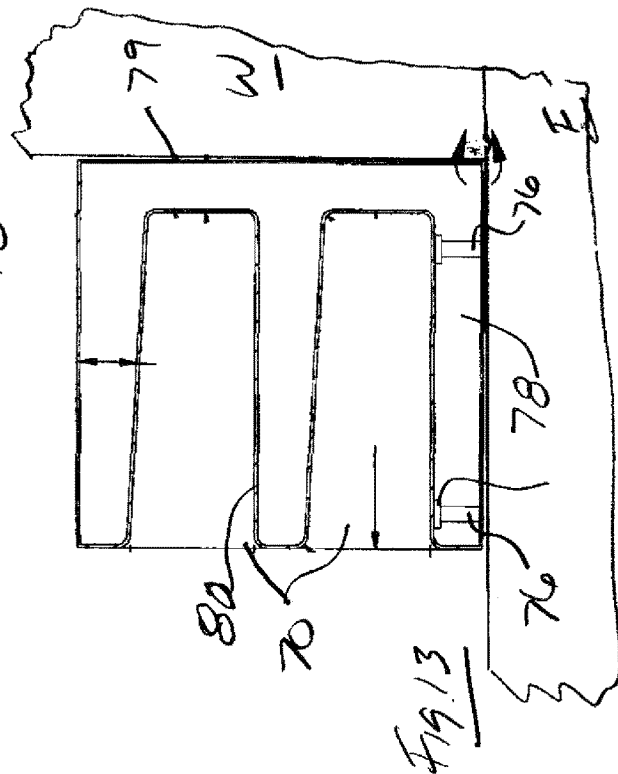
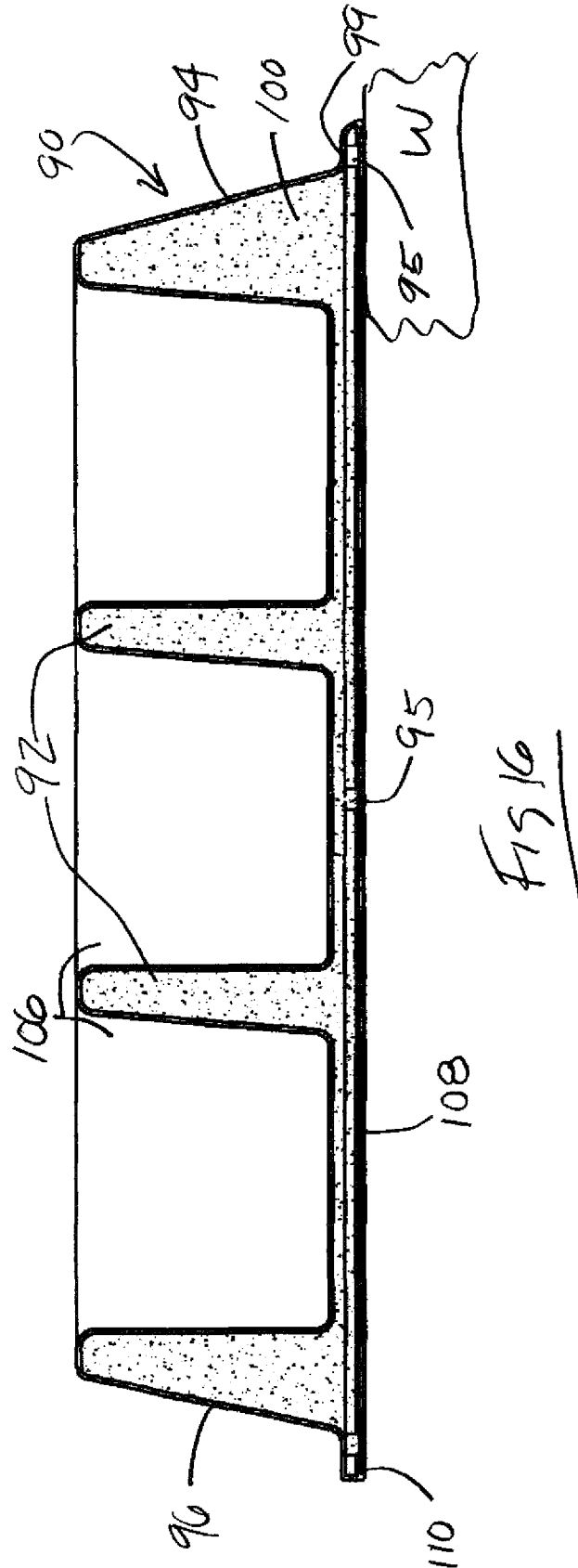
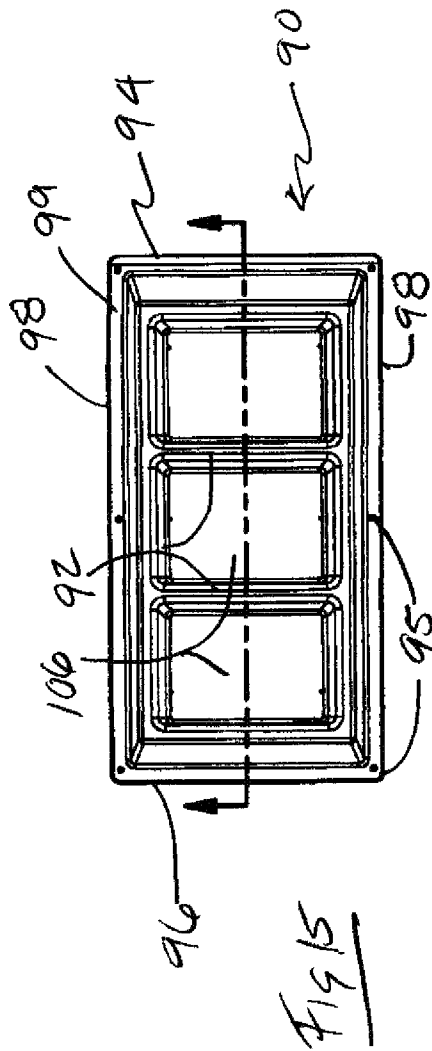
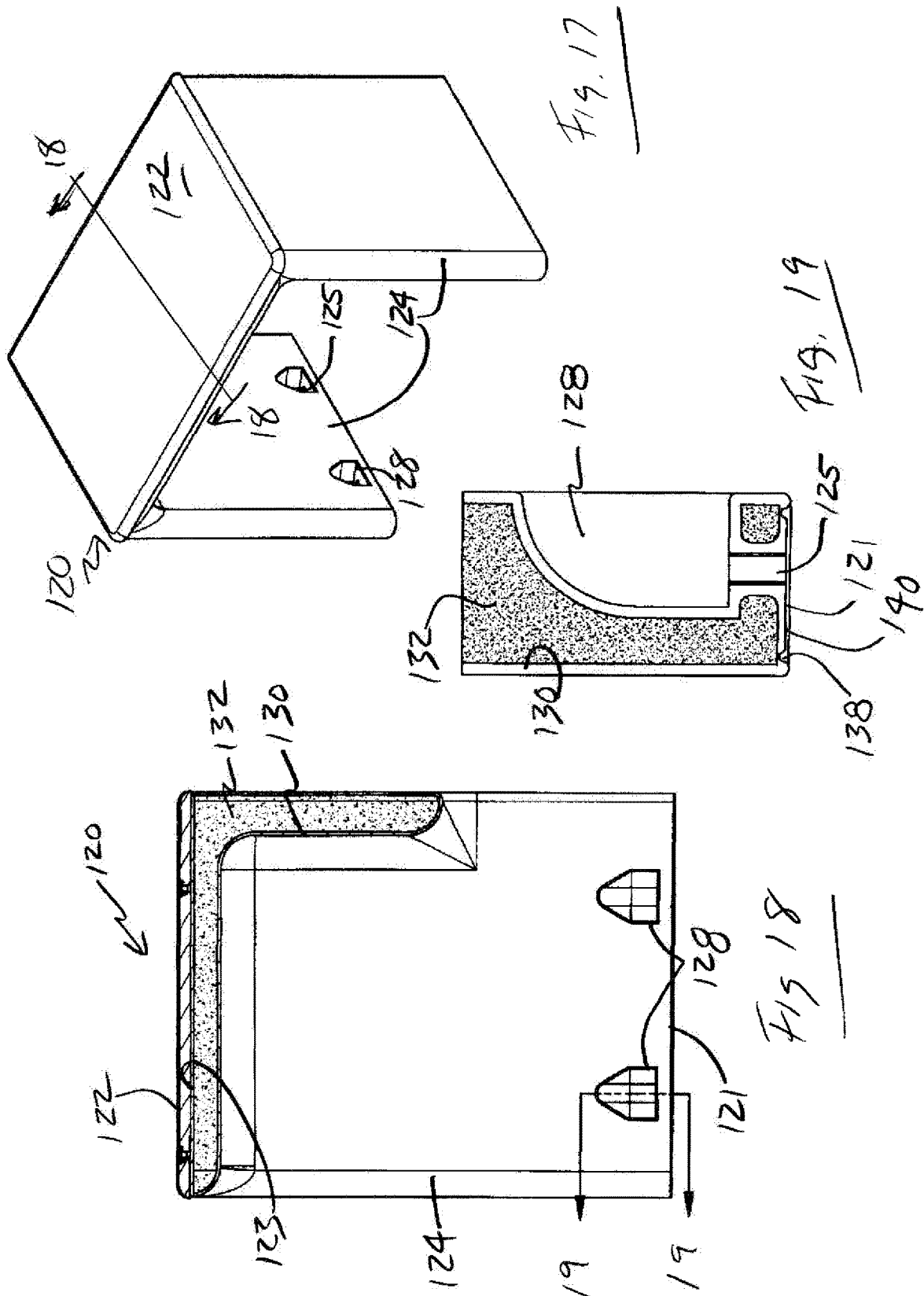
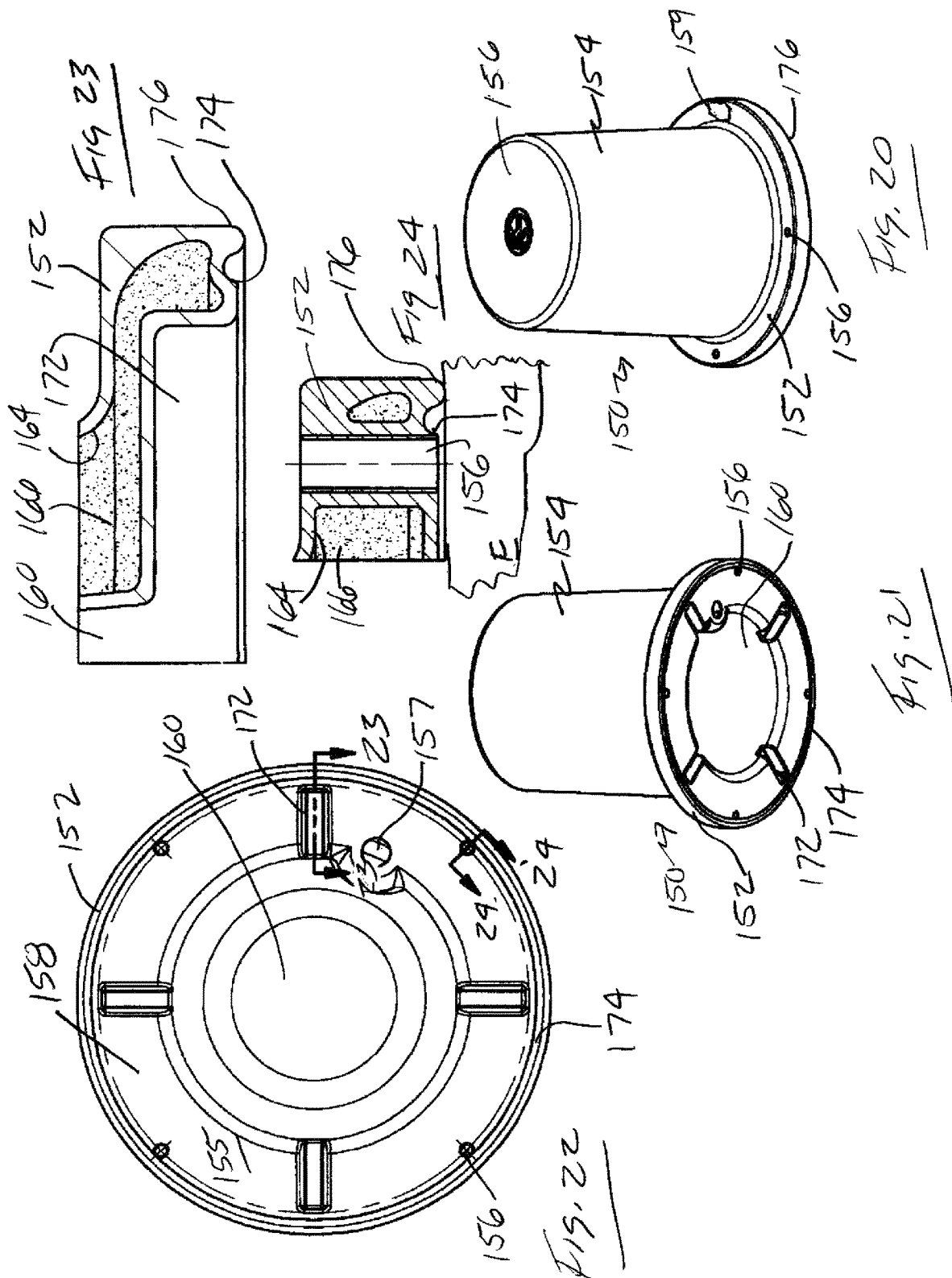
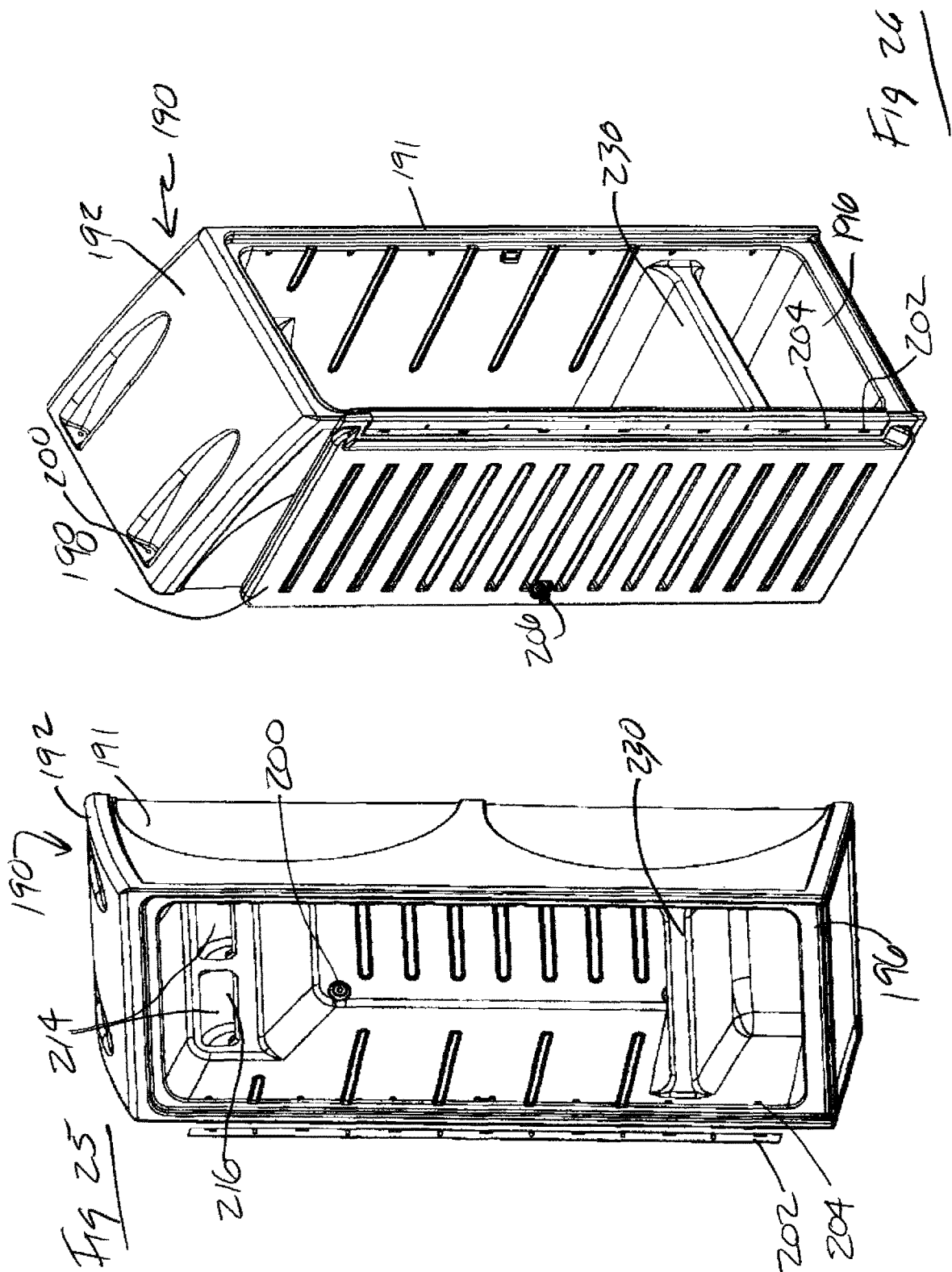


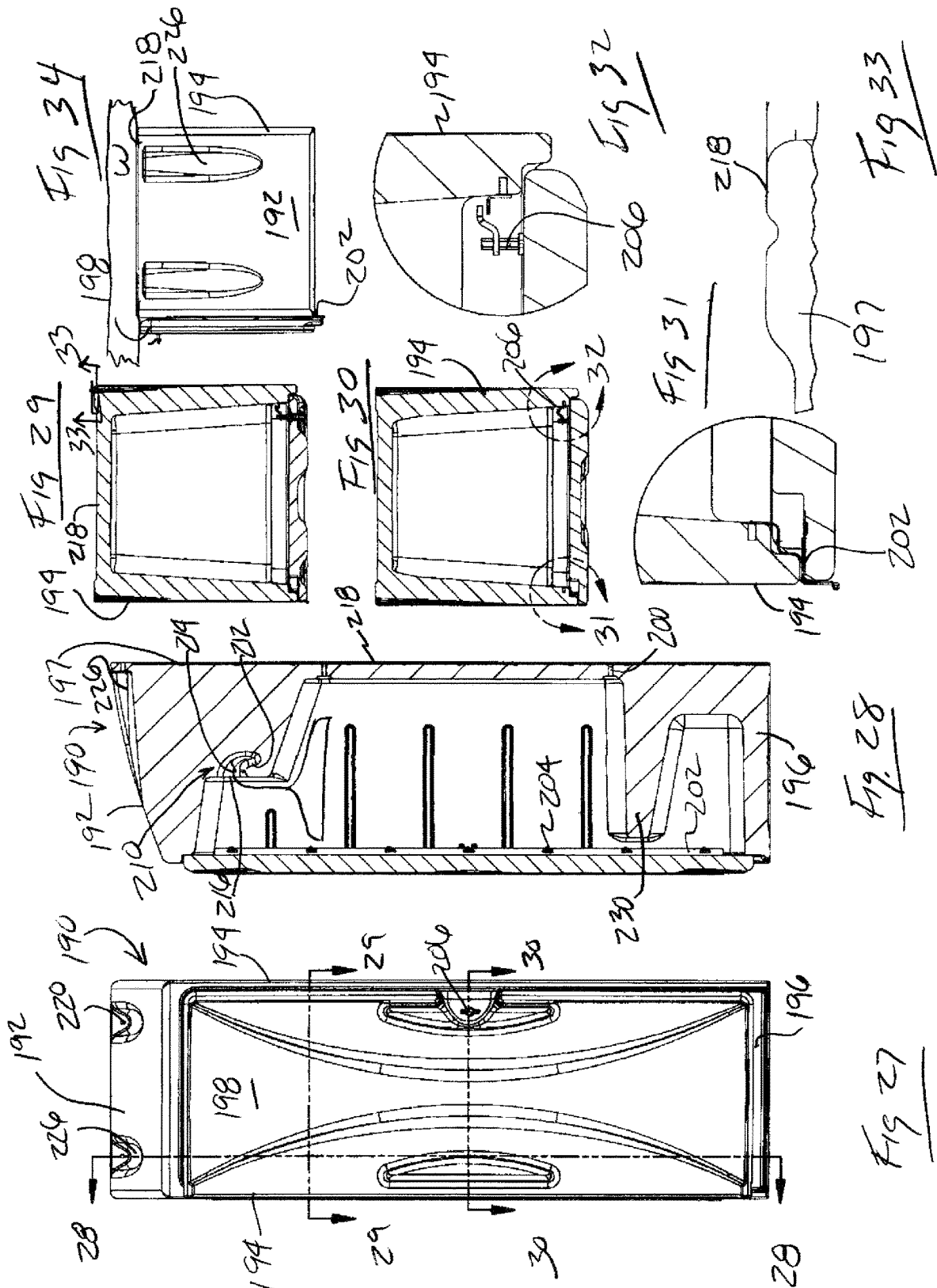
Fig. 13

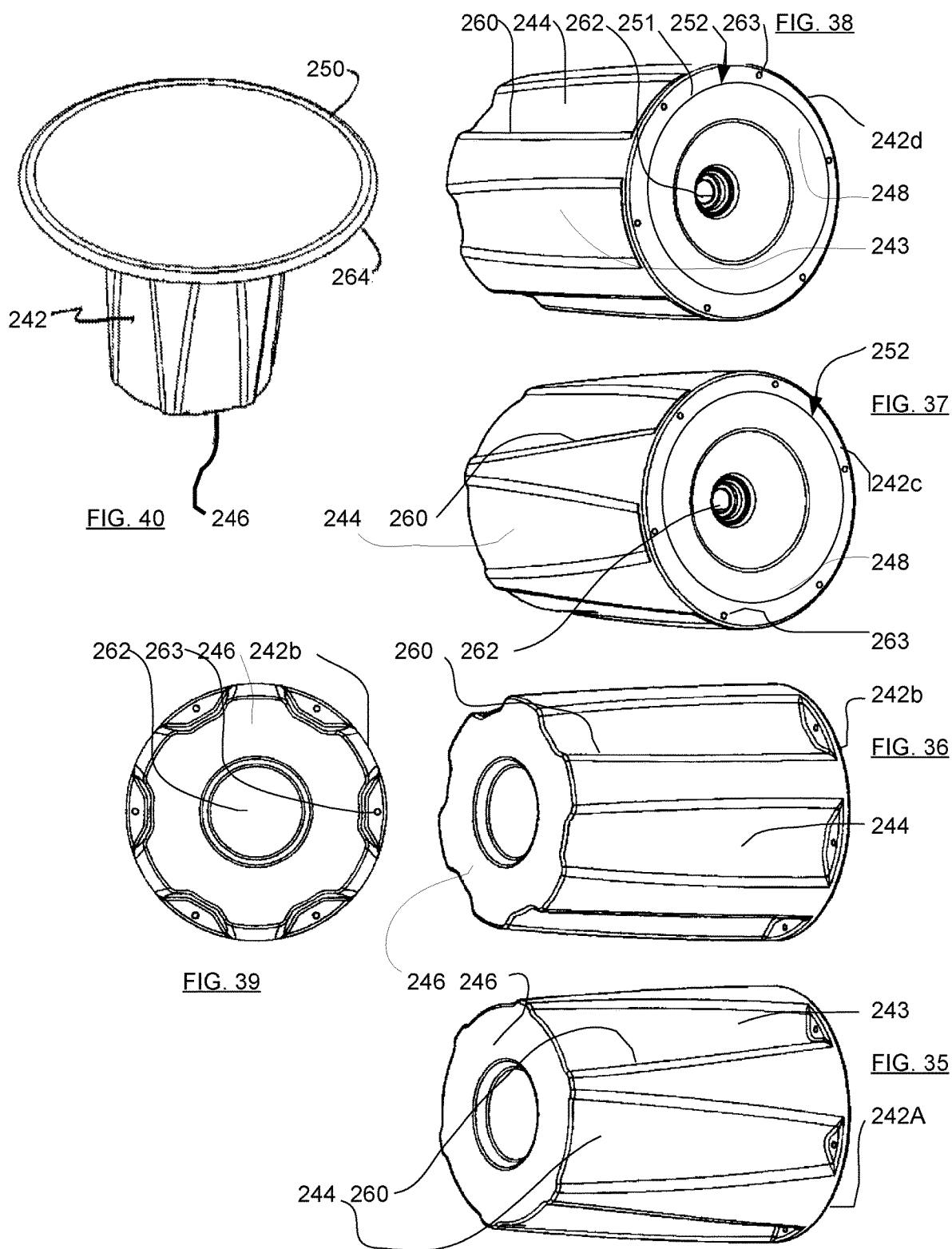


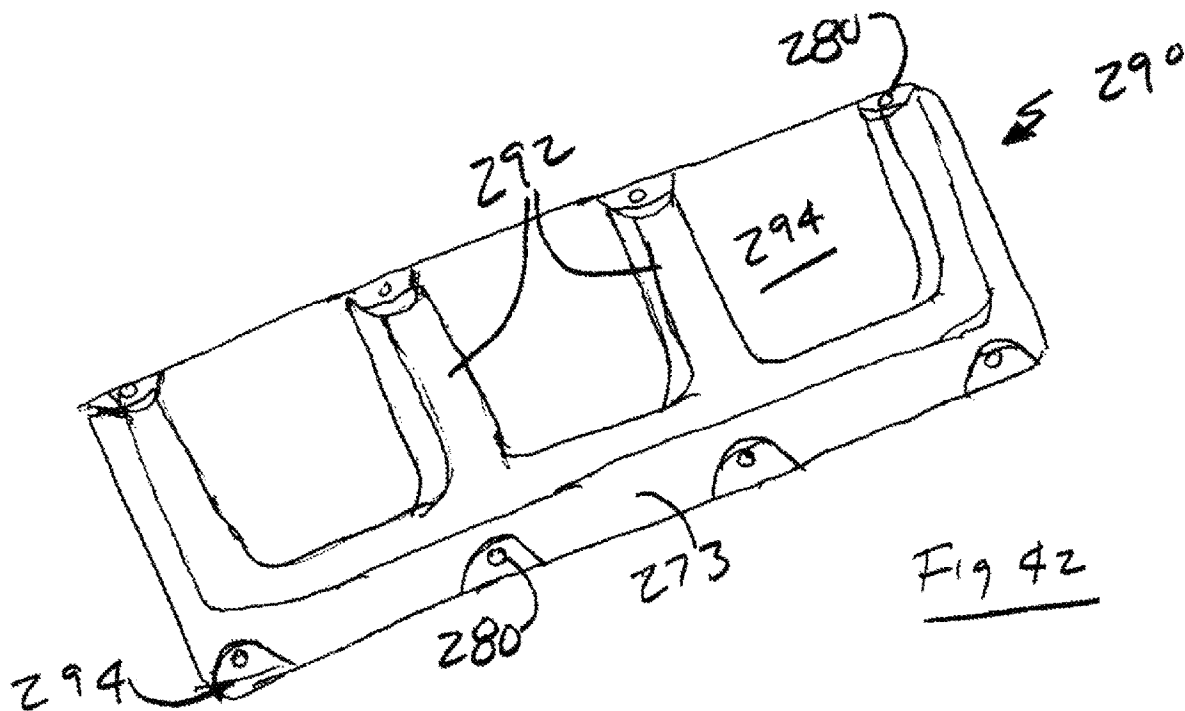
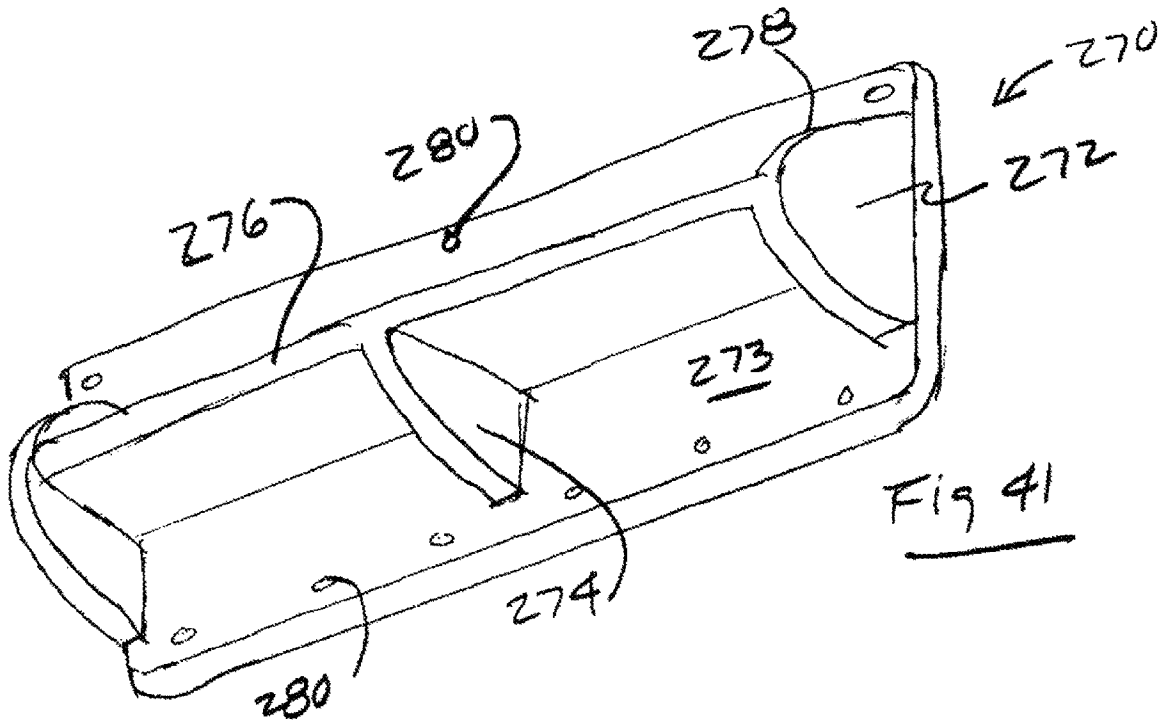












US 10,507,150 B2

1

INTENSIVE USE FURNITURE

RELATED APPLICATIONS

This application is a continuation of co-pending U.S. Non-provisional application Ser. No. 13/450,508, Apr. 19, 2012, which claims the benefit of then copending non-provisional application Ser. No. 13/186,853 filed Jul. 20, 2011 and claims the benefit of the filing date of said co-pending Non-provisional Application Serial No. claims the benefit of the filing date of said co-pending Non-provisional application Ser. No. 13/186,853 filed Jul. 20, 2011, which claims the benefit of the filing date of U.S. patent application Ser. No. 11/868,308 filed Oct. 5, 2007, now U.S. Pat. No. 8,007,059 B2 entitled Intensive Use Furniture

FIELD OF THE INVENTION

Present invention relates generally to intensive use furniture for use in institutional settings such as prisons, jails, detention centers and psychiatric facilities. And more particularly to furniture for use by individuals where using a contraband barrier to secure the furniture components to each other, and to the floor or wall, sealing close seams at the interface is important to prevent urine and other liquids from penetrating into and under the product and prevent concealment of contraband.

BACKGROUND OF THE INVENTION

Intensive use furniture is designed for use in demanding environments. Facilities housing individuals for rehabilitation from health or legal problems require furniture for safely furnishing living quarters while being durable.

Intensive use furniture was formerly made of steel or wood. In previous years, fiberglass construction was used to replace wood and metal. Fiberglass offered a more appealing aesthetic than steel or wood, and more resistant to damage by the user and damage by bodily fluids. Wood furniture, for example is known to have problems with bed bugs in these settings. Fluids can rot and damage wood furniture resulting in weakness and creating odors. Fiberglass however, had several limitations. Fiberglass cracked and splintered if a direct force was applied. Manufacturing fiberglass furniture was very slow and involved custom production.

Intensive use furniture for such facilities requires durability and ease of cleaning. Furthermore, it is desired that furniture used in such intensive use facilities prevent improper use of that furniture by the user such as concealing items within or underneath the furniture. Typically, an inmate in a correctional or psychiatric facility may try to conceal drugs, weapons or other contraband in the furniture. The structure of the furniture must avoid all of these problems.

In addition, intensive use furniture is usually fixed to the floor or walls. This fixture must be relatively simple, secure and preferably sealing the seams between the furniture and the adjoining surface. Preferably, the fixation method is provided with a means for preventing tampering by the user of the furniture. Securing the furniture to the floor or wall further reduces the safety concerns on both the prisoners or patients and staff resulting in a safer environment.

It is desirable to provide furniture for such facilities having durability, aesthetically pleasing characteristics and design for comfortable use. Therefore there is a need to provide an intensive use furniture product without using

2

assembly fasteners and having more impact-resistance, less weight and with much greater load-bearing capacity than fiberglass, wood or metal construction furniture. The furniture must sealingly attach to a mounting surface such as a wall or floor.

BRIEF SUMMARY OF THE INVENTION

One embodiment of the present invention is directed to a line of furniture for use in demanding environments, comprising components for use in individual's cell or room, as well as use in common areas such as a bed, night stand, wardrobe, desk, footstool and wall shelving units. The individual components are rotationally molded using a flame retardant linear low-density polyethylene with a hollow or honeycomb interior and may be filled with polyurethane foam for increased durability and sound absorption. The components comprise a shell having a mounting surface, the mounting surface having an outer edge surrounding the shell. The mounting surface is adapted for sealingly attaching to a structural element such as a wall or floor. The shell is attached to the wall or floor by an attachment means such as threaded fastener extending through a bolt hole in the mounting surface wherein an insert of metal or hard plastic may be inserted in the bolt hole for support. Generally horizontal surfaces on shelves, wardrobes, and the like are formed to gently slope downward away from a support wall to prevent the user from placing items on top of the furniture and to resist supporting a ligature or climbing on top of the furniture. The mounting surface includes a contraband barrier for sealing seams between the mounting surface of the shell and the wall, floor or furniture component by a caulk channel formed around the entire perimeter of the mounting surface to isolate the interior portion of the mounting surface from fluids, contraband, weapons or other materials and contraband at the outer edge. The caulk channel in the mounting surface is adapted to receive a bead of caulk for forming a fluid resistant barrier between the furniture and the adjoining wall or floor surface. The bolt holes may be concealed by covers affixed over the bolt holes by adhesive or the like forming a smooth or recessed outer surface of the shell over the fasteners protecting the structural attachment to the floor or wall.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

FIG. 1 is a perspective view of an first embodiment of an intensive use bed

FIG. 2 is a perspective view of the underside of the intensive use bed of FIG. 1.

FIG. 3 is a perspective view of an second embodiment of an intensive use bed

FIG. 4 is a perspective view of the underside of the intensive use bed of FIG. 3.

FIG. 5 is a front plan view of a first embodiment of a fastener cover of FIG. 1.

FIG. 6 is a section view taken at 6-6 of FIG. 5 of the first embodiment of a fastener cover.

FIG. 7 is a perspective view of the first embodiment of a fastener cover of FIG. 5.

FIG. 8 is a front plan view of a second embodiment of a fastener cover of FIG. 3.

FIG. 9 is a section view taken at 9-9 of FIG. 8 of the second embodiment of a fastener cover.

FIG. 10 is a perspective view of the second embodiment of a fastener cover of FIG. 8.

SA065

A15

US 10,507,150 B2

3

FIG. 11 is a front top perspective view of an intensive use nightstand.

FIG. 12 is a front bottom perspective view of an intensive use nightstand.

FIG. 13 is a section view taken at 13-13 of FIG. 11.

FIG. 14 is a section view taken at section 14 of FIG. 13.

FIG. 15 is a front plan view of an intensive use three shelf wall shelf.

FIG. 16 is a section view taken at 16-16 of FIG. 15.

FIG. 17 is a perspective view of an intensive use desk.

FIG. 18 is a section view taken at 18-18 of FIG. 17.

FIG. 19 is a section view taken at 19 of FIG. 18.

FIG. 20 is a top perspective view of an intensive use footstool.

FIG. 21 is a bottom perspective view of an intensive use footstool.

FIG. 22 is a bottom plan view of the intensive use footstool.

FIG. 23 is a section view taken at 23-23 of FIG. 22.

FIG. 24 is a section view taken at 24-24 of FIG. 22.

FIG. 25 is a bottom perspective view of an intensive use Wardrobe.

FIG. 26 is a top perspective view of an intensive use wardrobe.

FIG. 27 is a front elevation view of the intensive use wardrobe of FIG. 25.

FIG. 28 is a section view taken at section 28-28 of FIG. 27.

FIG. 29 is a section view taken at 29-29 of FIG. 27.

FIG. 30 is a section view taken at 30-30 of FIG. 27.

FIG. 31 is a detail section view taken at section 31 of FIG. 30.

FIG. 32 is a detail section view taken at section 32 of FIG. 30.

FIG. 33 is a detail section view taken at section 33 of FIG. 29.

FIG. 34 is a top plan view of the intensive use wardrobe of FIG. 26.

FIG. 35 is a bottom perspective view of an intensive use table base.

FIG. 36 is a bottom perspective view of a second embodiment of an intensive use table base

FIG. 37 is a top perspective view of a third embodiment of an intensive use table base.

FIG. 38 is a top perspective view of a fourth embodiment of an intensive use table base.

FIG. 39 is a bottom plan view of the second embodiment of an intensive use table base of FIG. 36.

FIG. 40 is a perspective view of an intensive use table having a tabletop attached to a table base.

FIG. 41 is a perspective view of a first embodiment of an intensive use bookshelf.

FIG. 42 is a perspective view of a second embodiment of an intensive use bookshelf.

DETAILED DESCRIPTION OF THE INVENTION

FIGS. 1 through 4 illustrate an intensive use furniture component shown as a first and second embodiment of a bed 20. Referring to FIGS. 1 and 3, the bed 20 is rectangular having a top surface 22, a pair of end side walls 24 and a front and rear side walls 26. The bed 20 has an attachment means 27 formed in the end, rear and front walls 24, 26. The attachment means may comprise a plurality of fastener pockets 32 disposed in spaced relation on the end surfaces and front and rear surfaces for receiving fasteners (not

4

shown) therein for extending through the shell to attach the bed 20 to the floor F (FIG. 5). The top surface 22 has a ridge 33 surrounding the support portion 35 forming a recessed pocket on the top of the bed. The ridge and support surface form a recessed pocket as a means for locating a mattress (not shown) as well as containing the seepage of bodily or other undesirable fluids within the ridge 33. Each of the surfaces may have a contoured or smooth non-penetrable outer shell for resisting penetration by fluids. A cover 25 may be placed over the fastener pockets 32 to protect the fasteners from the user and to prevent fluid from seeping into the pockets or contraband being placed in the fastener pocket 32. Referring to FIGS. 2 and 4, the intensive use bed 20 is shown in a bottom perspective view. The intensive use bed 20 has a bottom surface 34 forming the mounting surface for attaching the bed to a floor F (FIG. 5). The bottom surface is formed comprising a plurality of openings 36 forming a honeycomb structure 38 to improve strength and reduce the weight of the bed 20. A bottom plate 39 may be plastic welded or adhesively attached over the bottom surface 34 to cover the openings 36 to increase strength and to prevent contraband or fluid from residing in the openings, for example if the bed is not attached to the floor. The honeycomb structure 38 comprises a plurality of end support beams 40 extending between the end walls 24. The honeycomb structure 38 further comprises the plurality of edge support beams 42 extending between the front walls 26 and the rear walls forming a plurality of chambers 43 (FIG. 6) enclosed in the shell of the bed and open recesses 36 opening to the bottom surface 34.

As illustrated in FIGS. 1 to 4, the outer walls 24, 26 may have contoured ridges 37 formed in the surface to provide ridges for support of the walls and improve the aesthetic appearance of the bed. The fastener pockets 32 formed in the outer walls 24, 26 are generally scalloped shaped. A fastener hole 40 is formed in the fastener pocket 32 to accommodate a fastener such as a bolt or the like being inserted into the mounting location and attached to the floor under the bed. The fastener pockets 32 of the bed also accept tie down buckles 45 for use in psychiatric applications.

Referring to FIGS. 3 and 4, the bed 20 illustrated as a second embodiment has a pair of storage openings 28 opening into the front surface 26. The storage surface 26 has a gently sloped storage cavity floor 27 to prevent fluid collection and ease spray cleaning and drying.

Referring to FIGS. 5 and 8, the fastener pocket 32 is shown having a contoured surface 45 extending to a bolt hole 40 formed from through the mounting surface, shown as mounting flange 46. The mounting flange 46 is formed in each of the fastener pockets 32 having a top side 39 in the fastener pocket 32 adjacent the contoured surface and a bottom side 41 on the bottom surface 34. The fastener hole 40 extends from the top side 39 to the bottom side 41 and is adapted to receive a fastener such as a bolt extending through the mounting flange for attachment to a structure such as the floor F. A metallic or plastic insert 50 may be inserted in fastener hole 44 to provide additional support for the mounting flange 46 to prevent crushing the flange when the bolt is tightened. As illustrated in FIG. 5, contoured cover 49a and in FIG. 8, flat cover 49b are used to hide the bolt to prevent tampering. The cover 49a, 49b is attached by plastic welding or adhesive 51, forming a slightly recessed surface with respect to the walls 24, 26.

Referring to FIGS. 6 and 7 the contoured cover 49a has a shape for being received in fastener pocket 32 as shown in FIG. 5.

US 10,507,150 B2

5

Referring to FIGS. 9 and 10, the contoured cover 49b has a generally planar shape having a contoured outer edge to fit into and cover the fastener pocket 32 as illustrated in FIG. 8.

Continuing to refer to FIGS. 5 and 8, foam 52 is injected into the generally hollow chambers of the honeycomb structure of the bed 20. A caulk channel or groove 54 is shown intermediate the outer edge 56 of the bottom surface 34 and the fastener hole 40. The caulk channel 54 extends around the entire perimeter of the lower surface. The caulk channel 54 is preferably semicircular in cross sectional shape and preferably has a radius of between 0.07 inches and 0.25 inches.

Referring to FIGS. 11-14, an alternate embodiment of an intensive use furniture component is illustrated as an intensive use nightstand 60. The intensive use nightstand 60 has a top surface 62, a pair of side surfaces 64 and a front surface 68. Front surface 68 is shown having two openings 70 for holding items such as books. Or clothes. Nightstand 60 has rounded corners 72 and a smooth outer surface on the top 62 and sides 64. The nightstand 60 may have a mounting surface on the base 78 and/or the back surface 79. The nightstand is shown having a plurality of fastener holes 76 formed in the base 78.

Referring to FIG. 13, a section view of the nightstand 60 is illustrated showing two openings 70 and a generally horizontal lower surface 80 and fastener holes 76 extending from the lower opening 70 through the base 78. An insert may be molded into fastener holes 76 to prevent crushing the base 78 when fasteners are tightened.

Referring to FIG. 14, a caulk channel 77 is illustrated on lower surface 81 of base 78 and the back surface 79. Caulk channel 77 extends around the entire perimeter of base 78 and spaced from the outer edge of the base 78, to sealingly attach the nightstand to the floor in conjunction with fasteners (not shown) extending through fastener holes 76. The caulk channel 77 is preferably formed intermediate the fastener holes 76 and the outside perimeter of the base 78. Alternately, the nightstand may be adapted having a mounting surface on the back surface 79 for attachment to a wall W. Referring to FIG. 14, a detailed view taken from view 14 of FIG. 6 is illustrated showing a caulk channel 82 on the vertical rear surface 79. The caulk channel 82 extends around the entire perimeter of the vertical rear surface 79 for sealingly attaching the nightstand 62 adjacent wall W. The nightstand 60 has gently sloped storage cavities 73 to prevent fluid collection and ease spray cleaning and drying.

Referring to FIGS. 15 and 16, a third embodiment of an intensive use furniture component is illustrated as a wall shelf 90. Wall shelf 90 is illustrated as a three-shelf 92 wall shelf, however additional configurations may also be manufactured having more or fewer shelves 92. The wall shelf 90 as a top 94, a bottom 96 and two sides 98. Each shelf 92 extends between the two sides 98 and is defined by the opening between adjacent shelves. The wall shelf 90 is preferably formed by rotational molding forming a hollow outer core 97 that is filled with structural foam 100. A mounting flange 99 is formed around the perimeter of the wall shelf 90 having a plurality of spaced fastener holes 95 for accepting threaded fasteners to attach wall shelf 90 to a wall.

Referring to FIG. 16, a section view of the wall shelf of FIG. 8 is illustrated having shelves 92 defining openings 106. The wall shelf 90 of FIGS. 15 and 16 is generally mounted vertically having a longer vertical length and shorter horizontal width. Top 94 and bottom 96 are formed having non-horizontal surfaces to prevent items from being

6

placed on top of the wall shelf 90 or to resist climbing thereon by the users. A flat rear surface 108 forms a mounting surface adapted to mount against a wall W by fasteners extending through the fastener holes 94. The shelves 92 are gently sloped and form storage cavities to prevent fluid collection and ease spray cleaning and drying.

A caulk channel 110 is formed on the mounting flange 99 for accepting a bead of caulk (not shown) to sealingly attach the wall shelf to the wall W and eliminate any gaps between the wall shelf and the wall.

Referring to FIGS. 17-19 an additional embodiment of an intensive use furniture component is shown as a desk 120. The desk 120 has an upper surface 122 having rounded corners and a pair of support legs 124 and a rear support panel 126. The support legs have a mounting surface 121 on the bottom for attaching to the floor F, the mounting surface having a perimeter surrounding bolt holes 125. A plurality of fastener openings 128 are shown formed in the lower portion of the support legs 124 having the bolt holes extending through the mounting surface to the floor with the head of the bolt adapted to be recessed in the fastener opening 128. As illustrated in FIGS. 18 and 19, the desk 120 may be rotationally molded forming a hollow shell having a core 130 which may be filled with foam 132 such as polyurethane. The upper surface 122 comprises a separately manufactured hard writing surface constructed from one of a high pressure laminate, thermo laminate, wood, plastic sheet or other planar material which may be separately manufactured and attached to the support legs 124. It is anticipated the support legs may further comprise a caulk groove on the top mounting surface 123 attached to the upper surface 122 to provide a contraband barrier between the legs and the writing surface. The writing surface may also be integrally molded with the legs 124.

Referring to FIGS. 17 and 18, the fastener openings 128 are generally scallop shaped openings in the support legs 124. The fastener openings 128 provide a recessed mounting for fasteners extending through fastener hole 134. Referring to FIG. 12, the support legs 124 are preferably formed by a molding process to create a hollow shell 130 which may be filled with the structural foam 132. A caulk channel 138 is formed on the lower surface 140 on each support leg on 24. The caulk channel extends around the perimeter of the floor surface 140 of the support leg. The caulk channel is adapted to receive the bead of caulk for sealing and attaching the desk 120 to the floor. As discussed with respect to the bed 20 above, the fastener openings may be closed with covers to conceal the bolts B (FIG. 6).

Referring to FIGS. 20-24, an alternative embodiment of an intensive use furniture component is shown as a footstool 150. The footstool 150 has a mounting flange 152 surrounding a foot support 154 having a top surface 156. Footstool 150 is secured to a floor surface 158 by fasteners 159 extending through each of a plurality of fastener holes 156 formed in the base. A foam fill hole 157 is formed in the bottom 155 to provide access for blowing in or inserting foam in the footstool hollow shell.

As illustrated in FIG. 20, the footstool 150 has a bottom 158 and a hollow interior cavity 160. The footstool 150 may be formed by rotational molding or similar process to form a substantially hollow shell 164 that may be filled with foam 166 (FIG. 15) for support and sound deadening. A central cavity 162 extending from the bottom 158 reduces the amount of material used for forming the footstool 150. Bottom 158 may also comprise a plurality of support ridges 172 adding structural integrity to the mounting flange on 52. The support ridges 172 extend from the central cavity 162 to

US 10,507,150 B2

7

a position adjacent caulk channel **174**. Fastener holes **156** are formed in a circumferential position with respect to the bottom **158**. Caulk channel **174** is formed in the bottom **158** intermediate the fastener holes **158** and the outer perimeter **176**.

Referring to FIGS. **23** and **24**, foam **166** is used to support the hollow shell **164**. The caulk channel **174** is disposed on the bottom **158** adjacent the outer perimeter **176** for receiving a bead of caulk **178** for sealingly attaching the footstool **152** to a floor surface **F**. The support ridges **172** are molded into the bottom **158** to provide structural support for the base.

Referring to FIGS. **25** to **34**, an alternate embodiment of an intensive use furniture component is illustrated as a wardrobe **190** comprising cabinet **191** having a top **192**, sides **194**, a base **196**, a back panel **197** and an optional, at least one door **198** attached to the cabinet **191**. The wardrobe **190** is adapted for mounting to a floor surface or an adjacent wall surface of both. The wardrobe **190** has a plurality of fastener openings **200** formed on the top **192** for receiving fasteners to attach to an adjacent wall **W**. An integrally molded sloped top surface **193** is used to prevent storage and concealment of contraband and further resist climbing. The sloped surfaced could be a separate piece and attached during manufacturing or installation by fasteners or adhesive as is well known in the art of fastening plastic components together.

The hinged door illustrated in FIG. **25**, preferably uses a piano style hinge **202** to create the strongest and most secure attachment to the wardrobe **190** as illustrated in FIGS. **25**, **26** and **28-33**. The door may also be reversible as a left or right hinge depending on the installation requirements. A tambour door option may also be considered unique in the field. The door can be molded the same as the other components in the product line or may be different such as HPL (high pressure laminate) laminate, thermoformed laminate, MDF or wood. The door is positioned to allow for complete 270 degree opening around the piano hinge as necessary to prevent overstressing the hinges as shown in FIG. **34**. Metal inserts **204** (FIGS. **25**, **26** and **28**) are used throughout the product to attach the hinges to increase attachment strength and security. A locking means **206** may be included through integrated or separate latch features.

Referring to FIGS. **26** and **28**, the clothes hanging feature **210** is molded as an integral J-bar **212** feature to prevent a traditional bar being used as a ligature support. The geometry of the J-bar **212** is preferred to be integrated into the part, but may be a separate piece fastened into the cabinet **191**. A removable piece could be used as a weapon in these intended environments. The cabinet **191** has recessed pockets **214** at the upper portion having internal j-bar **212** on the lower front surface for securely supporting the hook of a standard clothes hanger. The upper portion of the wardrobe **190** is filled to resist hiding contraband or other material above the j-bar **212**. A hanger recess **216** is formed between the j-bar **212** and the back **218** of the cabinet **191** to accommodate the hanger. Fastener holes **220** are formed in the back **218** and extend through the back panel **197** which is adapted to be a mounting surface for attachment to a wall **W**. Fasteners **224** are extending from inside the cabinet through the back panel to the wall **W**. Additional fasteners **224** are disposed in fastener pockets **226** on the top of the cabinet **191** as illustrated in FIG. **34**. As discussed above, covers may be used to conceal the fasteners and close the fastener pockets **226**. A lower shelf **230** is formed in the cabinet **191** forming a storage opening **228** between the shelf **230** and the base **196**.

8

Referring to FIGS. **35-40** an intensive use table **240** is illustrated. The table **240** has a base **242a-d** having a vertical wall **243** having an outer surface **244**, a floor end **246** and a table top end **248**. The tabletop end **248** comprises a mounting surface for attachment to a tabletop **250** (FIG. **20**). The mounting surface may have a caulk groove **251** formed therein for acting as a contraband barrier **252**. The table base **242a-d** may have a contoured outer surface defined by ridges **260** for additional support. The ridges may be linear, parallel, curved or otherwise formed to provide structural support for the As illustrated in FIGS. **37** and **38**, the top of the base has a hollow cavity **262** that may be filled with sand during installation. The tabletop **250** is attached by fasteners extending through the base **242** at bolt holes **263** and attaching to the underside **264** of the top **250**. The top may be formed as the writing surface of the desk **120** described above.

Referring to FIGS. **49** and **50**, an alternate embodiment of an intensive use furniture component is shown as a book shelf **270**. Referring to FIG. **49**, the bookshelf **272** has a base **273** adapted to support a pair of vertical ends **272** and a support leg **274**. Bookshelf **270** may be formed with more or fewer legs **274** depending on its intended use and the size of the shelf **276**. Ends **272** and support leg **274** are formed with rounded corners **278** to prevent supporting clothes being hung thereon, a ligature or the like. The shelf **276** is formed with a gently sloping surface angle to allow liquids to run off and facilitate cleaning. Bolt holes **280** are formed in the base **273** to attach the book shelf to the wall **W**. A caulk bead is formed on the base at the back opposite the shelf **276** as a contraband barrier sealing between the wall **W** and the base.

Referring to FIG. **50**, the bookshelf **290** has upper support legs **292** supporting shelf **276** on base **273**. Fastener pockets **294** are formed at the junction of the shelf **276** and base **273**. Bolt holes **280** are formed through the base and disposed in the fastener pockets **294**. The fastener pockets **294** are adjacent the outer edge of the base **273** facilitating closure of the fastener pocket with a cover as described above regarding the intensive use bed **20**.

Referring generally to FIGS. **1** to **17**, the intensive use furniture products are preferably rotationally molded in flame retardant, plastic resin with a hollow interior. In the preferred embodiment, the plastic resin may be High Density Polyethylene (HDPE) or Linear Low Density Polyethylene (LLDPE). The resin may contain additives such as flame-retardants to meet government standards. As a means to increase product strength and durability, a secondary material is used to fill the hollow cavities left during the molding process. Molding plastic could be done by rotational, blow, injection, thermo forming or compression molding where one or more pieces may be used to create the hollow cavity.

The secondary material filling the cavities of the molded products may be structural polyurethane foam selected for increased durability and sound absorption. The filler may be injected under pressure and may consist of urethane foam or other material that can conform to the irregular cavities created during the molding process. The filled, rotationally molded products are significantly more impact-resistant, with much greater load-bearing capacity, than the fiberglass predecessors. Because the products are produced from molds, the production capacity increases allow more efficient manufacturing and a product that is less expensive to ship and install.

A fire retardant additive is added to the linear low-density polyethylene and molded into the intensive use furniture products to meet fire rating standards such as the State of

US 10,507,150 B2

9

California, Technical Bulletin No. 133, Flammability Test Procedure for Seating Furniture for Use in High-Risk and Public Environments.

In the molding process, nylon may be added to the plastic mix for molding the forming the substantially hollow shell to reduce de-lamination between the polyethylene walls and polyurethane foam filler.

Due to the intensive-use nature of the products, the individual components preferably include a means of securely fastening the product to a floor, wall or other desired mounting surface. In the preferred embodiment, the components are typically bolted to a structurally sound mounting surface such as a floor (bed, nightstand, stool) or a wall (Wardrobe, wall shelf, wall storage units) through molded-in bolt hole locations. Additionally each mounting position may be reinforced with metal inserts disposed in the bolt holes by insertion during the molding process or during finishing operations, to prevent crushing of the plastic surrounding the bolt holes or on a mounting flange.

To facilitate a tighter fit to the floor and eliminate gaps, each product features a semicircular shaped, hidden caulk channel on the underside of the unit, along the outer edge and preferably around the entire mounting surface forming a closed circuit of caulk adjacent the perimeter of the mounting surface. The caulk channel has a diameter profile to accommodate a standard bead of sealant such as caulk to seal any seams between the intensive use furniture and the mounting surface, the size of which may vary with the particular components. This allows the end-user to seal the floor and back edges of wall or floor mounted products to prevent concealment of contraband, prevent fluids from penetrating the surface mounting areas and facilitate cleaning of the component and surrounding areas.

The present invention has been shown and described with reference to the foregoing exemplary embodiments. It is to be understood, however, that other forms, details, and embodiments may be made without departing from the spirit and scope of the invention which is defined in the following claims.

We claim:

1. An intensive use bed comprising a molded, non-penetrable outer shell having a generally horizontal top, a bottom, a pair of generally vertical end walls, a generally vertical first side wall, a generally vertical second side wall and a plurality of mounting flanges, each of the generally vertical end walls on the top, the first generally vertical side wall on the top, the first side wall attached to and between the pair of end walls whereby the end walls are in spaced relation and substantially parallel to each other, the second generally vertical side wall on the top, the second side wall attached to and between the pair of end walls, the bottom on the pair of generally vertical end walls, the bottom attached to the first and second side walls whereby the top and bottom are in spaced relation and substantially parallel to each other, each of the plurality of mounting flanges comprising a bolt hole extending through the bottom, one of the plurality of mounting flanges disposed in a first one of the pair of end walls adjacent the bottom, another one of the plurality of mounting flanges disposed in the first side wall adjacent the bottom, a first end support ridge in the first one of the pair of end walls, a first side support ridge disposed in the first side wall, a recessed pocket in the top, a recessed pocket in the bottom.

10

2. The intensive use bed of claim 1, further comprising a storage compartment in one of the generally vertical end walls, the first side wall or the second side wall.

3. The intensive use bed of claim 1, further comprising a storage compartment integrally molded into the molded shell.

4. The intensive use bed of claim 1, further comprising a ridge on the top, the ridge adjacent to the recessed pocket.

5. The intensive use bed of claim 1, wherein the molded outer shell further comprises a contoured outer surface.

6. The intensive use bed of claim 1, wherein the bottom is molded separate from the top, the end walls, the first side wall and the second side wall.

7. The intensive use bed of claim 1, wherein the first contoured end support ridge and the first contoured side support ridge are oriented in a generally vertical orientation perpendicular to the top.

8. The intensive use bed of claim 1, further comprising a contoured, second end support ridge on a second one of the pair of end walls and a second side support ridge on the second side wall.

9. The intensive use bed of claim 8, wherein the first and second end support ridges are disposed in a generally horizontal orientation, the first and second side support ridges are disposed in a generally horizontal orientation.

10. The intensive use bed of claim 1, the outer shell further comprising an edge support beam attached to and extending between the first side wall and the second side wall.

11. The intensive use bed of claim 10, further comprising an end support beam attached to and extending between the pair of end walls.

12. The intensive use bed of claim 11, wherein the recessed pocket further comprises a perimeter, a ridge on a portion of the perimeter.

13. The intensive use bed of claim 10, wherein the outer shell further comprises a plurality of end support beams extending between the pair of end walls.

14. An intensive use bed comprising a non-penetrable outer shell comprising a generally horizontal top, a bottom, a generally vertical first end wall, a generally vertical second end walls, a generally vertical first side wall and a generally vertical second side wall, a recessed pocket in the top, the recessed pocket extending toward the bottom, a ridge disposed on the top adjacent the recessed pocket, each of the first and second end walls on the top, each of the first and second side walls on the top, the first and second end walls attached to and between the first and second side walls, the first and second end walls in spaced relation and substantially parallel to each other, the bottom on the first and second end walls, the bottom attached to the first and second side walls, the top and bottom in spaced relation and substantially parallel to each other, the bottom comprising a plurality of openings configured as a honeycomb structure, the openings extending from the bottom toward the top, the shell further comprises a mounting flange on the first side-wall adjacent the bottom, a plurality of contoured end support ridges on the the first end wall, a plurality of contoured side support ridges on the first side wall, an edge support beam attached to and extending between the first and second side wall, and an end support beam attached to and extending between the first and second end walls.

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(12) **EX PARTE REEXAMINATION CERTIFICATE** (11899th)
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Karl et al.

(10) **Number:** **US 10,507,150 C1**(45) **Certificate Issued:** **Aug. 19, 2021**(54) **INTENSIVE USE FURNITURE***A47C 31/00* (2006.01)*A47C 19/22* (2006.01)(71) Applicants: **Richard B. Karl**, Naples, FL (US);
Scott Karl, Geneva, IL (US); **Kurt Staskon**, Orland Park, IL (US)(52) **U.S. Cl.**
CPC *A61G 7/047* (2013.01); *A47C 19/22* (2013.01); *A47C 31/00* (2013.01); *A61G 7/05* (2013.01)(72) Inventors: **Richard B. Karl**, Naples, FL (US);
Scott Karl, Geneva, IL (US); **Kurt Staskon**, Orland Park, IL (US)(58) **Field of Classification Search**
None
See application file for complete search history.(73) Assignee: **Norix Group, Inc.**(56) **References Cited****Reexamination Request:**

No. 90/014,485, Apr. 4, 2020

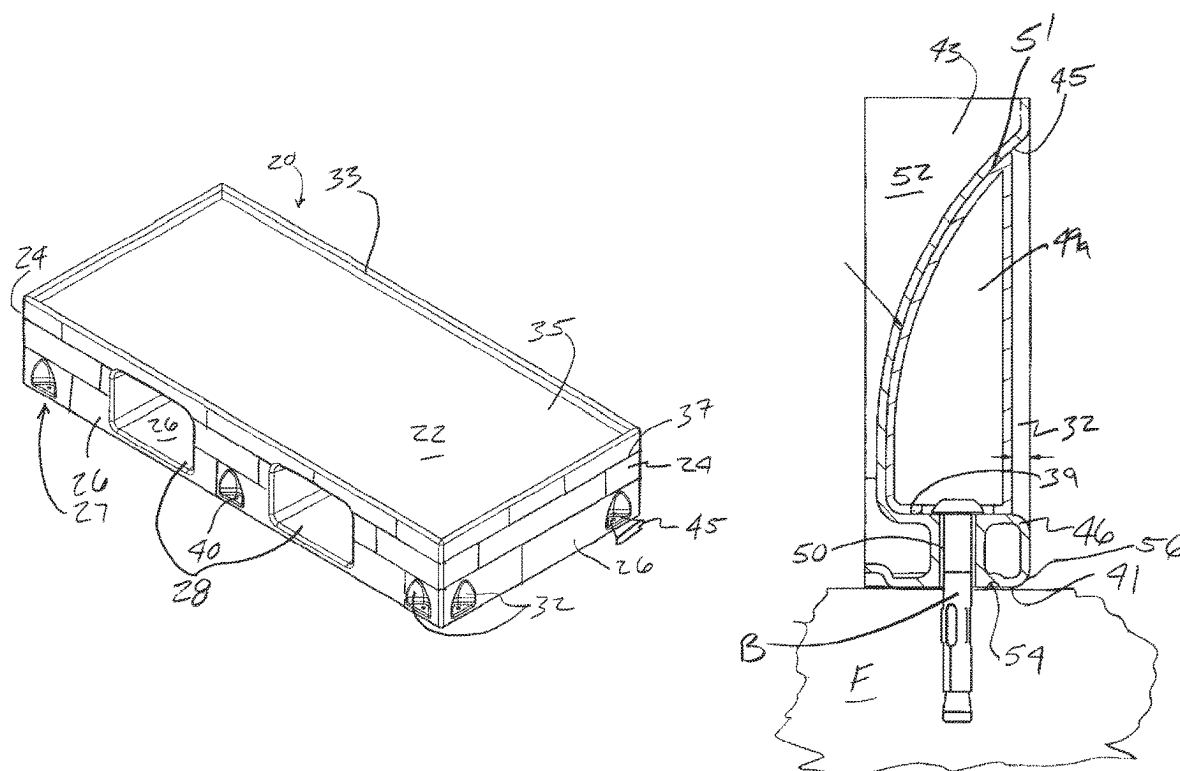
To view the complete listing of prior art documents cited during the proceeding for Reexamination Control Number 90/014,485, please refer to the USPTO's public Patent Application Information Retrieval (PAIR) system under the Display References tab.

Reexamination Certificate for:Patent No.: **10,507,150**
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Appl. No.: **15/583,955**
Filed: **May 1, 2017***Primary Examiner* — Patricia L Engle**Related U.S. Application Data**

(63) Continuation of application No. 13/450,508, filed on Apr. 19, 2012, now Pat. No. 9,661,933, which is a continuation of application No. 13/186,853, filed on Jul. 20, 2011, now abandoned, which is a continuation of application No. 11/868,308, filed on Oct. 5, 2007, now Pat. No. 8,007,059.

(51) **Int. Cl.***A47C 19/00* (2006.01)
A61G 7/05 (2006.01)
A61G 7/047 (2006.01)(57) **ABSTRACT**

The invention is directed to an intensive use furniture component having a sealing connection on a mounting surface for sealingly attaching to a floor or wall to prevent liquid from seeping under or behind the furniture component. The furniture component is formed by an outer shell having a side wall extending generally perpendicular to the mounting surface. A mounting flange is disposed adjacent the sidewall. A bolt hole is formed in the mounting flange. The sealing connection comprises a caulk channel formed as a channel in the mounting surface for receiving a bead of caulk to fill the seam between the mounting surface and the wall or floor to prevent fluid from seeping past the caulk channel to a space adjacent the interior mounting surface.

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US 10,507,150 C1

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EX PARTE

REEXAMINATION CERTIFICATE

THE PATENT IS HEREBY AMENDED AS
INDICATED BELOW.

Matter enclosed in heavy brackets [] appeared in the patent, but has been deleted and is no longer a part of the patent; matter printed in italics indicates additions made to the patent.

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1, 4, 5 and 7-14 is confirmed.

Claims 2, 3 and 6 are determined to be patentable as amended.

New claims 15-18 are added and determined to be patentable.

2. [The] *An intensive use bed [of claim 1] comprising a molded, non-penetrable outer shell having a generally horizontal top, a bottom, a pair of generally vertical end walls, a generally vertical first side wall, a generally vertical second side wall and a plurality of mounting flanges, each of the generally vertical end walls on the top, the first generally vertical side wall on the top, the first side wall attached to and between the pair of end walls whereby the end walls are in spaced relation and substantially parallel to each other, the second generally vertical side wall on the top, the second side wall attached to and between the pair of end walls, the bottom on the pair of generally vertical end walls, the bottom attached to the first and second side walls whereby the top and bottom are in spaced relation and substantially parallel to each other, each of the plurality of mounting flanges comprising a bolt hole extending through the bottom, one of the plurality of mounting flanges disposed in a first one of the pair of end walls adjacent the bottom, another one of the plurality of mounting flanges disposed in the first side wall adjacent the bottom, a first end support ridge in the first one of the pair of end walls, a first side support ridge disposed in the first side wall, a recessed pocket in the top, a recessed pocket in the bottom, the intensive use bed further comprising a storage compartment in one of the generally vertical end walls, the first side wall or the second side wall.*

3. [The] *An intensive use bed [of claim 1,] comprising a molded, non-penetrable outer shell having a generally horizontal top, a bottom, a pair of generally vertical end walls, a generally vertical first side wall, a generally vertical second side wall and a plurality of mounting flanges, each of the generally vertical end walls on the top, the first generally vertical side wall on the top, the first side wall attached to and between the pair of end walls whereby the end walls are in spaced relation and substantially parallel to*

2

each other, the second generally vertical side wall on the top, the second side wall attached to and between the pair of end walls, the bottom on the pair of generally vertical end walls, the bottom attached to the first and second side walls whereby the top and bottom are in spaced relation and substantially parallel to each other, each of the plurality of mounting flanges comprising a bolt hole extending through the bottom, one of the plurality of mounting flanges disposed in a first one of the pair of end walls adjacent the bottom, another one of the plurality of mounting flanges disposed in the first side wall adjacent the bottom, a first end support ridge in the first one of the pair of end walls, a first side support ridge disposed in the first side wall, a recessed pocket in the top, a recessed pocket in the bottom, the bed further comprising a storage compartment integrally molded into the molded outer shell.

6. The intensive use bed of claim 1, [wherein the bottom is molded separate from the top, the end walls, the first side wall and the second side wall] *further comprising a bottom plate on the bottom of the outer shell, the bottom plate covering the bottom recessed pocket.*

15. The intensive use bed of claim 1, wherein the outer shell defines an inner chamber.

16. The intensive use bed of claim 15, wherein the outer shell is one piece.

17. The intensive use bed of claim 16, further comprising structural foam in the inner chamber.

18. *An intensive use bed comprising a non-penetrable, hollow outer shell comprising a generally horizontal top, a bottom, a generally vertical first end wall, a generally vertical second end wall, a generally vertical first side wall, a generally vertical second side wall and an inner chamber, the inner chamber enclosed in the outer shell, a top recessed pocket in the horizontal top, the top recessed pocket extending toward the bottom, a ridge disposed on the horizontal top adjacent the top recessed pocket, each of the first and second end walls on the horizontal top, each of the first and second side walls on the horizontal top, the first and second end walls attached to and between the first and second side walls, the first and second end walls in spaced relation and substantially parallel to each other, the bottom on the first and second end walls, the bottom attached to the first and second side walls, the top and bottom in spaced relation and substantially parallel to each other, the bottom comprising a plurality of recesses configured as a honeycomb structure, each of the plurality of recesses extending from the bottom toward the horizontal top, the outer shell further comprises a mounting flange on the first sidewall adjacent the bottom, a plurality of contoured end support ridges in the first end wall, a plurality of contoured side support ridges in the first side wall, the outer shell further comprises an edge support beam attached to and extending between the first and second side walls, and an end support beam attached to and extending between the first and second end walls.*

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***EX PARTE* REEXAMINATION COMMUNICATION TRANSMITTAL FORM**

REEXAMINATION CONTROL NO. 90/014,844.

PATENT UNDER REEXAMINATION 10507150.

ART UNIT 3993.

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

SA073

Application/Control Number: 90/014,844
Art Unit: 3993

Page 2

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Brief Summary of the Prosecution History

A Request (“Request” or “Original Request”) for *ex parte* reexamination of claims 1-5, 7-9, 15, and 16 of United States Patent Number 10,507,150 to Karl et al. (“the ‘150 patent”) was filed by a Third Party Requester (“3PR”) on August 21, 2021. The ‘150 patent was the subject of prior reexamination proceeding 90/014,485 (the “first reexamination” or the “485 reexamination.”)

On October 27, 2021, an Order was mailed granting reexamination of claims 1-5, 7-9, 15, and 16.

A Patent Owner’s Statement under 35 U.S.C. 304, was timely filed on December 27, 2021. On the same date, Patent Owner (“PO”) filed a Petition to Withdraw the Order Granting Reexamination.

3PR filed a timely Reply to Patent Owner’s Statement on February 28, 2022.

Multiple copies of a Petition for Immediate Review of the Petition to Withdraw were filed by PO in May, 2022.

On June 11, 2022, 3PR filed a Requester’s Opposition to PO’s Petition to Withdraw the Order Granting Reexamination.

On August 29, 2022, a Decision was mailed Dismissing PO’s Petitions to Withdraw the Order Granting Reexamination and the Petition for Immediate Review.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 3

On February 2, 2023 a Non-final Office action was mailed, rejecting claims 1-5, 7-9, 15, and 16 (all of the claims within the scope of this proceeding).

A Reply was filed by Patent Owner on April 3, 2023 (the "Response") presenting arguments against the grounds of rejection set forth in the Nonfinal Office action. No claims are amended.

The grounds of rejection were changed in the non-final Office action mailed June 8, 2023. Claims 1-5, 7-9, 15, and 16 were rejected.

A Request for Reconsideration was filed by Patent Owner on August 8, 2023 (the "Response") presenting arguments. No claims are amended.

This Office action addresses the 8/8/2023 Response

Scope of Reexamination

Claims 1-5, 7-9, 15, and 16 fall within the scope of this reexamination proceeding. Reexamination of claims 6, 10-14, 17, and 18 was neither requested by 3PR nor ordered by the Examiner, and remain outside the scope of this proceeding.

Prior Art Documents Considered, Discussed, or Relied Upon in this Office Action

Glasspec (Exhibit E, Glasspec Product Catalog entitled "Glasspec Intensive Use Furniture" published prior to October 5, 2006)

Auburn (Exhibit B, U.S. Patent No. 5,490,292 to Auburn)

Karl (Exhibit Q, U.S. Patent No. 5,857,742 to Karl et al.)

Gladney (U.S. Patent Application Publication 2004/0078897 to Gladney; newly cited in this Office action.

Grounds of Rejection¹

As noted in previous Office actions, the following grounds of rejection are based on a combination of Glasspec and additional references. In the Order mailed October 27, 2021, Glasspec was analyzed as to an SNQ as to claims 1, 2, and 3, the salient limitations of which were identified as follows:

“a recessed pocket in the bottom” of the shell, as recited in claim 1;

“a storage compartment’ in one of the first and second side walls or the generally vertical end walls, as recited in claim 2; and

“a storage compartment integrally molded into the molded shell,” as recited in claim 3.

See pages 7-10 of the Order.

In the Order, Glasspec was found to **not** raise an SNQ as to the salient limitations found to be missing during the first re- examination (the ‘485 reexamination”) of claims 1, 2, and 3.

During the ‘485 reexamination, Glasspec was used for its teaching of a storage compartment in a rejection of claims 2 and 3. Claims 2 and 3 were subsequently found to be patentable over Glasspec and other references.

As discussed on pages 16-18 of the Order, the use of Glasspec as proposed in the Request for the salient limitations of claims 2 and 3, in the same manner as Glasspec was used in the first reexamination, cannot raise an SNQ in this proceeding.

¹ In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 5

An SNQ may be based solely on an "old art" reference, such as Glasspec, when the reference is presented/viewed in a new light, or in a different way, as compared with its use in the earlier concluded examination. To this end, the Request failed to present Glasspec in a new light or in a different way, as to the limitations argued or found to be missing from the prior art used during the '485 reexamination.

However, if the rejection to be made by the Examiner will be based on a combination of "old art" and art newly cited during the reexamination proceeding, the rejection is proper, and should be made. See *In re Hiniker*, 150 F.3d at 1367, 47 USPQ2d at 1527. (Court held the reexamination proceeding was supported by a substantial new question of patentability where the rejection before the court was based on a combination of art that had been before the examiner during the original prosecution, and art newly cited during the reexamination proceeding.)

See MPEP 2258.01.

Inasmuch as Glasspec cannot be used with respect to the same question of patentability (that of the storage compartments) which has already been decided as to the claim in a final holding of invalidity by a federal court or by the Office in an earlier concluded examination or review of the patent, it is not precluded from being used in a rejection in combination with newly cited prior art which teaches the limitations found to be missing during the first reexamination.

Therefore, Glasspec may be properly used in a rejection combination with newly cited art, namely Auburn and Karl.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 6

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

The following grounds of rejection are repeated from the June 8, 2023 Office action.

Ground 1

Claims 1, 4, 5, 8, 9, 15, and 16 are rejected under 35 U.S.C. 103 as being unpatentable over Glasspec in view of Auburn and Karl.

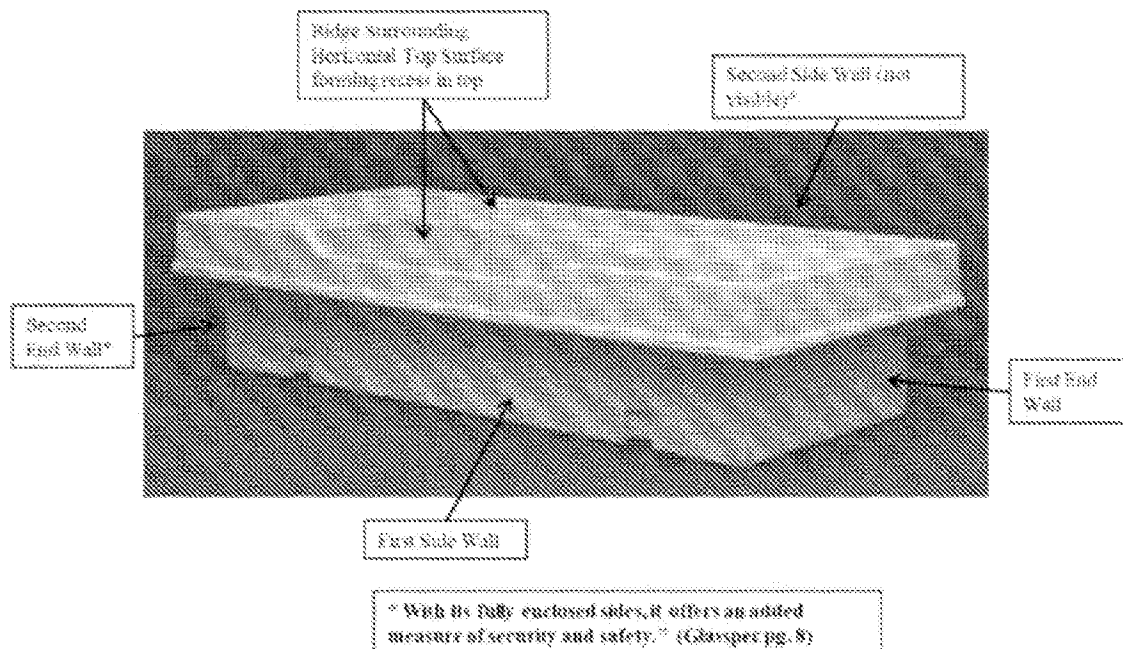
As shown in the image on page 8, Glasspec discloses an intensive use bed ("bed 8") comprising a molded, non-penetrable outer shell having a generally horizontal top, a bottom (as described on page 8), a pair of generally vertical end walls, a generally vertical first side wall, a generally vertical second side wall, each of the generally vertical end walls on the top, the first generally vertical side wall on the top, the first side wall attached to and between the pair of end walls whereby the end walls are in spaced relation and substantially parallel to each other, the second generally vertical side wall on the top, the second side wall attached to and between the pair of end walls, the bottom on the pair of generally vertical end walls, the bottom attached to the first and second side walls whereby the top and bottom are in spaced relation and substantially parallel to each other, a first end support ridge in the first one of the pair of end walls, a first side support ridge disposed in the first side wall, and a recessed pocket in the top.

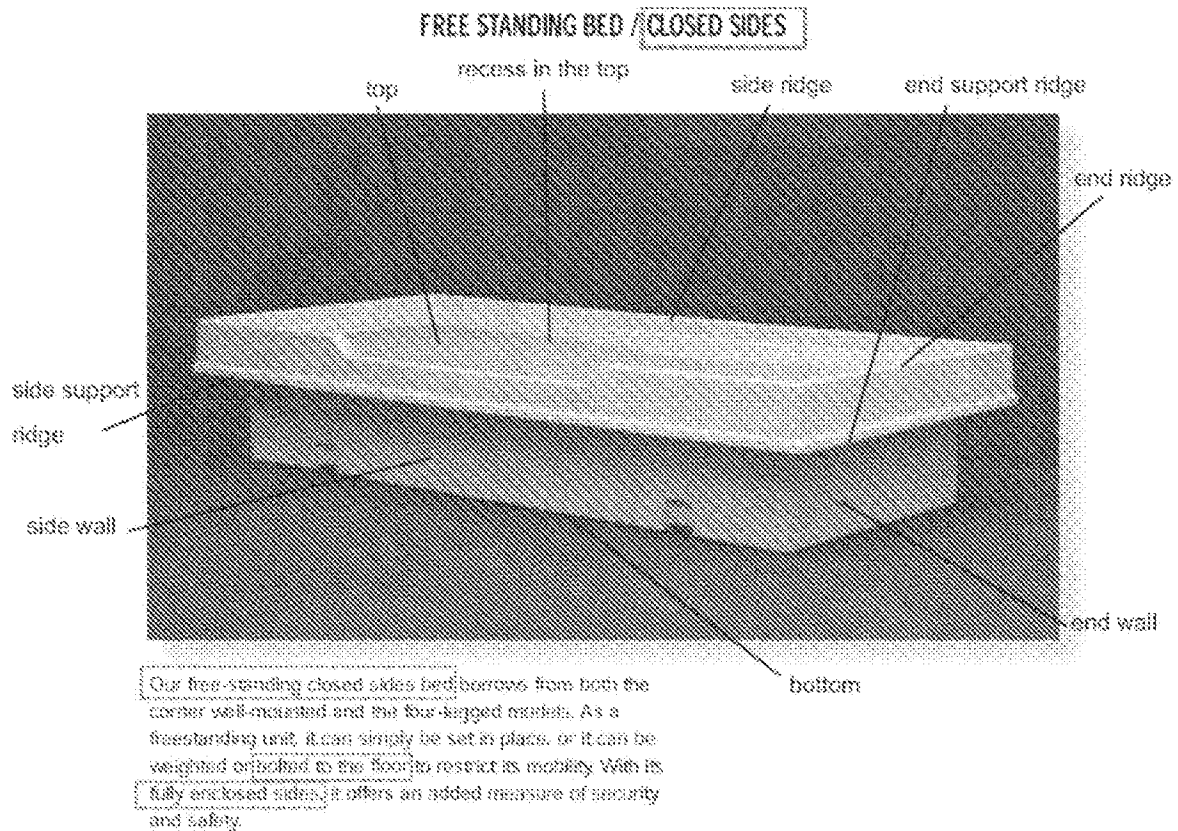
Application/Control Number: 90/014,844
 Art Unit: 3993

Page 7

Glasspec does not expressly describe the shell of bed 8 as being non-penetrable. However, having enclosed sides and a one-piece fiberglass construction, the shell of the bed would be considered to be “non-penetrable” at least for resisting fluids, and meets the broad recitation in the claim.

The following marked-up images of the bed 8 of Glasspec are reproduced from page 57 of the Request, and Exhibit K filed with the Request, respectively.

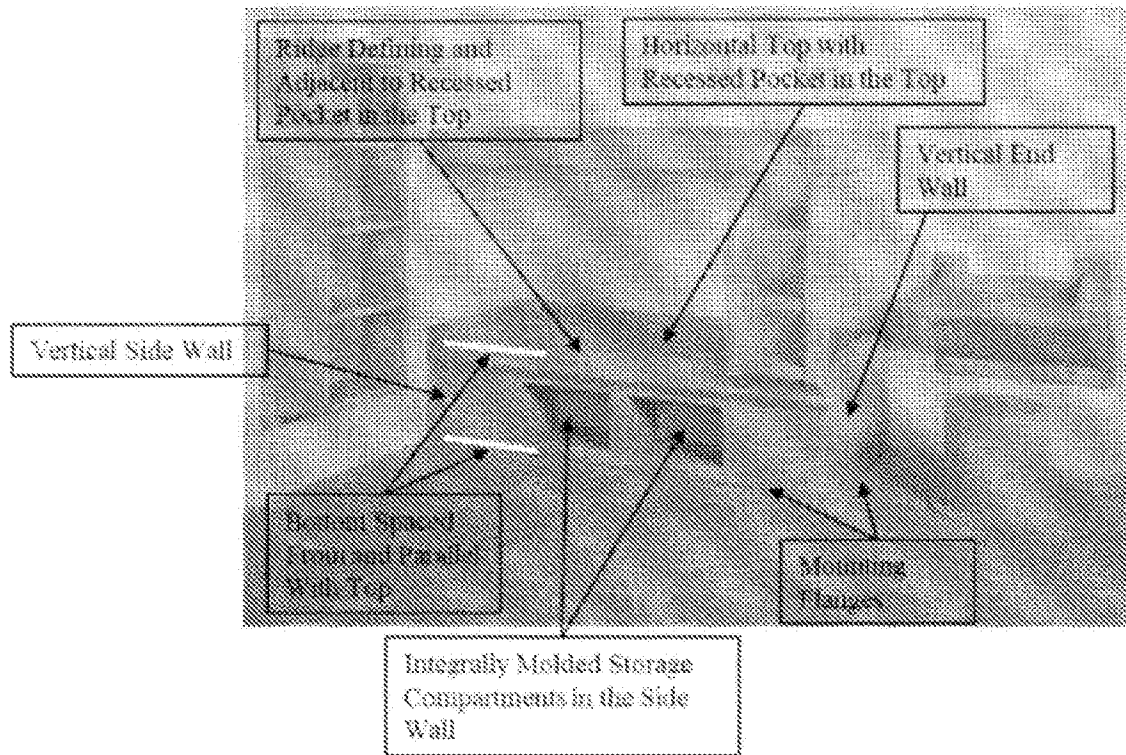




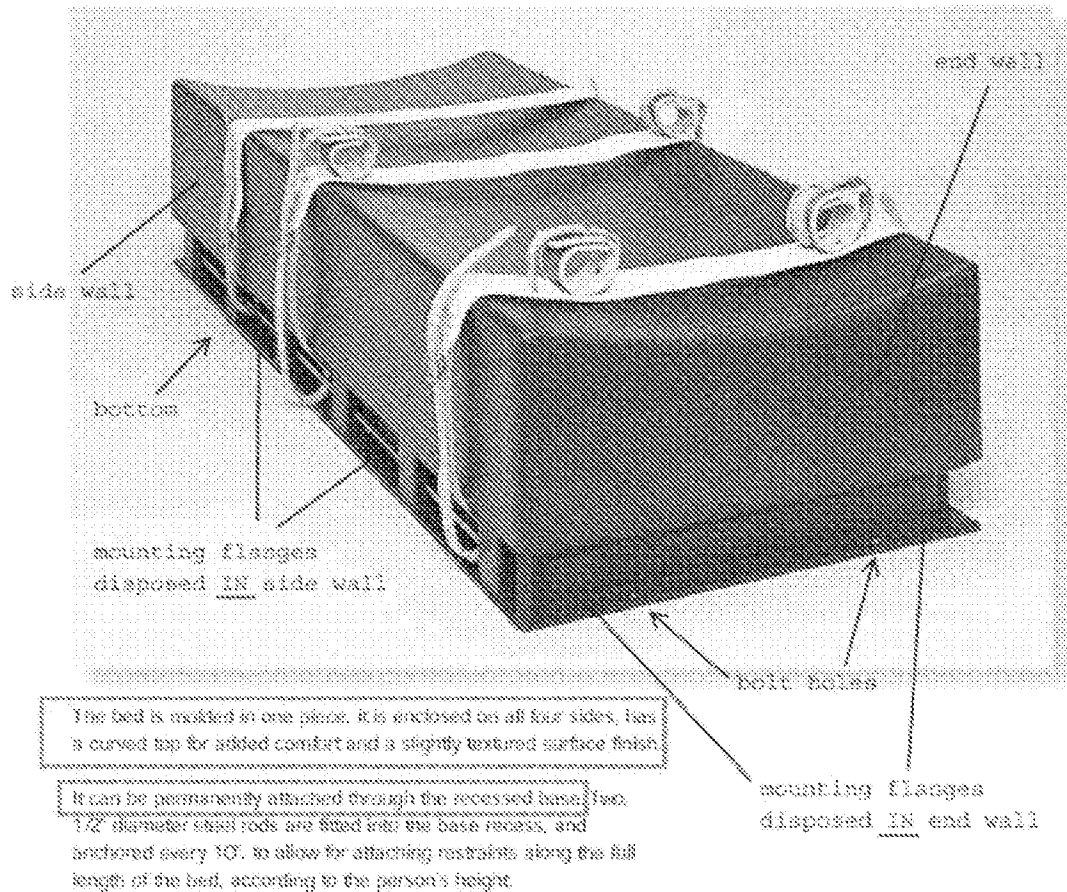
Glasspec specifically states that the bed 8 can be bolted to the floor, but does not appear to show or disclose a plurality of mounting flanges comprising bolt holes extending through the bottom, nor does this image show a recessed pocket in the bottom.

As shown in the image on page 4, Glasspec, further discloses an intensive use bed ("bed 4") comprising a molded outer shell having a plurality of mounting flanges. Each of the plurality of mounting flanges comprises a bolt hole extending therethrough; one of the plurality of mounting flanges is disposed in the at least one end wall adjacent the bottom, another one of the plurality of mounting flanges is disposed in the first side wall adjacent the bottom.

See the marked-up image of the Glasspec bed 4 (copied from page 49 of the Request):



The molded bed shown on page 7 ("bed 7") of Glasspec is enclosed on all four sides and includes mounting flanges in the side walls and end walls with bolt holes therethrough. A marked-up image copied from Exhibit I filed with the Request is reproduced below to show the bed 7:



Auburn teaches a one-piece molded bed comprising a top surface 12, a pair of end walls 60, 66, and a pair of side walls 56, 58. The molded bed may support an adult-size person. As shown in figures 2 and 3, the molded bed includes a bottom having a recessed pocket 82 formed therein. As set forth in column 4, Auburn describes the pocket as dimensioned to receive another bed in stacked nested relation, and as also providing an insulating air space between the sleeping surface and the floor.

Further, Karl shows furniture of molded one-piece construction and having a pair of parallel side walls and front and rear walls which are nearly parallel. As noted in lines 39-40, the construction of the chair makes it impossible to conceal objects inside the furniture. Figures 2-5, at least, show the chair to include a bottom surface 132 having a

Application/Control Number: 90/014,844
Art Unit: 3993

Page 11

recessed pocket (unlabeled) integrally molded in the center thereof. The enclosed bottom allows the chair to be weighted with sand or other material to impede movement of the chair.

From the teachings provided by bed 4 and bed 7 of Glasspec, those of ordinary skill in the art at the time of filing would have found it obvious to provide the bed 8 with mounting flanges having bolt holes extending through the bottom to secure the bed 8 to the floor. Providing mounting flanges on the bed 8 would yield the predictable result of facilitating the use of bolts to secure the bed to the floor, as shown and taught by bed 4 and bed 7.

From the teachings of Auburn and Karl, those of ordinary skill in the art at the time of filing would also have found it obvious to provide the bed 8 of Glasspec with a recessed pocket in the bottom in order to strengthen or add rigidity to the bottom as it is well-known in the materials and manufacturing arts that large sheets or panels of plastic or other materials can be made stronger or more rigid with the formation of grooves or recesses, which effectively create strengthening ribs.

With respect to claim 4, the bed 8 of Glasspec includes a ridge on the top adjacent the recessed pocket.

With respect to claim 5, the molded outer shell of the bed 8 is considered to comprise a contoured outer surface as broadly recited.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 12

With respect to claim 8, the bed 8 of Glasspec (reproduced above) is shown to be provided with first and second contoured side support ridges in the side walls of the bed.²

With respect to claim 9, the first and second end support ridges are disposed in a generally horizontal orientation, and the first and second side support ridges are disposed in a generally horizontal orientation, as shown in bed 8.

With respect to claim 15, the outer shell, being comprised of closed sides, a top, and an enclosed bottom, would inherently define an inner chamber.

With respect to claim 16, as noted previously the outer shell is one piece.

Ground 2

Claim 7 is rejected under 35 U.S.C. 103 as being unpatentable over Glasspec in view of Auburn and Karl, as applied to claim 1 above, and further in view of Gladney.

Glasspec, Auburn, and Karl meet all of the limitations of claim 1 as forth above in Ground 1, but vertically oriented contoured end and side support ridges do not appear to be shown.

Gladney teaches a foundation for a one-piece molded bed comprising a pair of generally vertical and parallel end walls and a pair of generally vertical and parallel side walls, each referred to by the reference character 120. As shown in the figures and described in paragraph 0028, the end walls and sidewalls may be corrugated or contain

² The claimed “contoured” end support ridge and the “contoured” side support ridge are presumed to further limit the end support ridge and the side support ridge set forth in claim 1, which does not recite these support ridges as being “contoured.”

Application/Control Number: 90/014,844
Art Unit: 3993

Page 13

other nonplanar shapes to increase the structural rigidity of the sidewalls and the overall foundation. As shown, the end walls and sidewalls have contoured support ridges.

From this teaching, it would have been obvious to those of ordinary skill in the art to provide the end walls and the sidewalls of bed 8 of Glasspec, as modified by Auburn and Karl, with first and second contoured end support ridges, and first and second contoured side support ridges oriented in a generally vertical orientation perpendicular to the top. This would yield the predictable result of increasing the structural rigidity of the sidewalls and end walls of the bed.

Ground 3

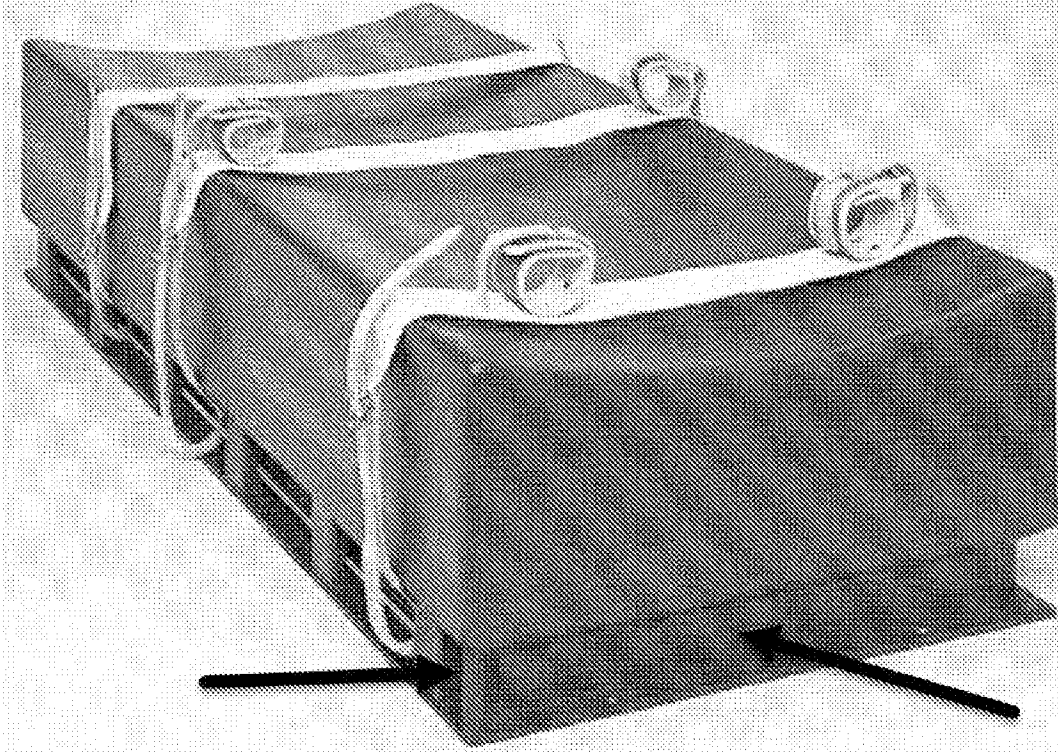
Claim 2 is rejected under 35 U.S.C. 103 as being unpatentable over Glasspec in view of Auburn and Karl.

Glasspec, Auburn, and Karl are applied to claim 2 in the same manner as forth above in Ground 1, which is incorporated by reference.

The bed 8 of Glasspec is shown to include small recesses in the side wall, but it is conceivable that the recesses might not be considered to be “storage compartments.”

The bed 4 of Glasspec shows the first side wall to contain a pair of storage compartments. As noted above, limitations drawn to the storage compartments were found to be patentable over Glasspec, and bed 4 of this reference is not available for a teaching of these features.

However, the end wall and the side wall of the bed 7 of Glasspec each include a recess or compartment as shown by the arrows in the marked-up image below:



This bed can be anchored to the floor by passing bolts through the flange as shown, and the flange does not extend beyond the end wall, which would make removal of the bolts more difficult by restricting access to them, and/or protect the bolts and the flange from contact with other objects, and/or minimize contact between the flange and a person's feet. The recesses in the side wall accommodate the bar as shown, and would also accommodate other objects, such as the bolts.

Karl also shows a recess or compartment 124 formed in the front side wall of the chair. While this compartment would accommodate the feet of a person sitting in the chair, Karl appears to suggest it is formed to permit simplified molding and provide a strong, durable, and comfortable chair. See lines 28-36 of column 4.

From the teachings provided by the bed 7 of Glasspec and/or the chair of Karl, those of ordinary skill at the time of filing would have found it obvious to provide the front wall and/or the end wall of the bed 8 of Glasspec with a compartment which could

Application/Control Number: 90/014,844
Art Unit: 3993

Page 15

store small objects or accommodate the feet of a person sitting on the bed and/or provide protection to the flange and the bolts which anchor the bed to the floor. Such a modification would yield predictable results because the compartment added to the front wall or the end wall of the bed of Glasspec would perform the same function as set forth in Karl and the bed 7 of Glasspec.

The intended use of the compartment, such as for “storage,” is an intended use and is afforded no patentable weight. The term “storage compartment” does not distinguish the claimed compartment from other compartments.

Ground 4

Claim 3 is rejected under 35 U.S.C. 103 as being unpatentable over Glasspec in view of Auburn and Karl.

Glasspec, Auburn, and Karl are applied to claim 3 in the same manner as forth above in Grounds 1 and 3, which are incorporated by reference.

The bed 4 of Glasspec shows the first side wall to contain a pair of storage compartments. However, as noted above, limitations drawn to the storage compartments were found to be patentable over Glasspec, and bed 4 this reference is not available for teachings of these features.

However, the end wall and the side wall of the bed 7 of Glasspec each include a recess or compartment as shown by the arrows in the marked-up image provided above in Ground 3.

This bed is molded in one piece and can be anchored to the floor by passing bolts through the flange as shown, and the flange does not extend beyond the end wall

Application/Control Number: 90/014,844
Art Unit: 3993

Page 16

due to the recess, which would make removal of the bolts more difficult by restricting access to them, and/or protect the bolts and the flange from contact with other objects, and/or minimize contact between the flange and a person's feet.

Karl also shows a recess or compartment 124 molded into the front side wall of the one-piece molded chair. While this compartment would accommodate the feet of a person sitting in the chair, Karl appears to suggest it is formed to permit simplified molding and provide a strong, durable, and comfortable chair. See lines 28-36 of column 4.

Karl further teaches compartments (recesses or indentations 134, 136, 138) integrally molded into the outer shell of the chair. The compartments receive bolts 146 and plates 142, the plates being used to join adjacent chairs together as shown in figure 2, for example. The plates 142 and/or the bolts 146 can be considered to be "stored" in the compartments.

From the teachings provided by the bed 7 of Glasspec and those of Karl, a person having ordinary skill at the time of filing would have found it obvious to provide the bed 8 of Glasspec with a compartment integrally molded into the molded outer shell of the bed in order to accommodate small objects, and/or the feet of a person sitting on the bed and/or accommodate hardware fastened to the bed or to the floor. This would yield the predictable result of allowing a compartment to be formed in the bed 8 by a molding process comprising integrally molding a compartment into the molded outer shell of the bed, thereby reducing the number of manufacturing steps necessary as compared to a molded bed in which a compartment is formed or attached to the bed after the bed is molded.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 17

The intended use of the compartment, such as for “storage,” is an intended use and is afforded no patentable weight. The term “storage compartment” does not distinguish the claimed compartment from other compartments.

Response to Arguments

Applicant's arguments filed August 8, 2023 have been fully considered but they are not persuasive.

The reasons why the '955 application was allowed during the original examination, as argued on page 2, are not relevant with respect to the grounds of rejection set forth in this re-examination proceeding.

The simple fact that Glasspec shows smooth end walls and sidewalls is not evidence that the reference “teaches away from the claimed support ridges” as argued on page 2. In the paragraph bridging pages 2 and 3, PO argues that the “arcuate shaped” sidewalls of Glasspec 8 are not generally vertical. This is not persuasive because the walls as shown meet the broad recitation of “generally vertical,” and PO has compared the *shape* of a portion of the side walls with the claimed *orientation* of the walls.

The argument on page 3 that Glasspec 8 shows the top to overhang the sidewalls is not persuasive is not persuasive that the reference does not teach a pair of end walls on top and a side wall on the top, as recited in the claims.

With respect to the arguments on page 3, it is wondered how much of a description is required before PO considers Glasspec to teach an enclosed bottom. None of the claims under reexamination even recite an “enclosed bottom.” Claims 1-3

Application/Control Number: 90/014,844
Art Unit: 3993

Page 18

merely recite “a bottom,” and those of ordinary skill in the art would readily understand that the “enclosed bottom” of Glasspec clearly meets the broad recitation of “a bottom,” which does not require enclosure.

With respect to Auburn, the arguments in the paragraph bridging pages 3 and 4 do not address the references or the rejection as applied. With respect to the Order, page 10 does NOT assert that “Auburn discloses all the limitations of claim 1, except the mounting flanges.” Instead, the Order quotes a statement from the Request and then neither agrees nor disagrees with the statement asserted by the Requester.

The assertion made in the last sentence of the second paragraph of page 4 is not well-taken. While the Order does assert a motivation to provide a recess in a one-piece molded bed, it most certainly does NOT state that it is a bed having mounting flanges with a bolt hole.

Finally, PO is reminded that the Order forms no part of the rejections of the claims. The rejections are wholly contained in the Grounds of Rejection.

With respect to Karl, PO does not explain how this reference describes and claims a non-analogous invention nor do the arguments address the combination of references (including Karl) used in the rejection.

The arguments with respect to Gladney on pages 4-5 do not address this reference as used in the rejection.

Contrary to the statement made on page 5, Norix is not discussed in the previous Office action.

Glasspec, Karl, Auburn, and Gladney are analogous prior art.

PO alleges that the prior art used in the rejections is non-analogous.

Independent claims 1-3 recite a bed comprising a molded non-penetrable outer shell. The Glasspec beds on pages 4, 7, at 8 all comprise one-piece molded beds comprising a non-penetrable outer shell. Karl teaches furniture (more specifically a chair) which may be formed by molding to comprise a non-penetrable one-piece outer shell. Auburn teaches a bed comprised of plastic and molded to form a non-penetrable one-piece outer shell. Gladney teaches furniture (more specifically a bed or a foundation of a bed) made of molded plastic and comprising a one-piece outer shell.

All of the references have been shown to be analogous prior art with respect to the claim bed comprising a molded non-penetrable outer shell.

Ground 1

In the paragraph bridging pages 6-7, the argument that the end walls of Glasspec 8 are disclosed as arcuate and therefore not generally vertical and not disposed in generally parallel orientation is noted but is not persuasive. As shown in the images, the walls may have an arcuate portion but are generally vertical and parallel as broadly recited.

On page 7, PO asserts Glasspec bed 7 provides no disclosure of mounting holes extending through the bottom of the bed, but fails to address the image which clearly shows a flange having bolt holes, and the description which states that the bed “can be permanently attached through the recessed base.” PO further asserts that bed 7 does not disclose a bottom; however, those of ordinary skill in the art would recognize that

Application/Control Number: 90/014,844
Art Unit: 3993

Page 20

the lowermost portion of the bed which rests on or is mounted to the floor would constitute the “bottom” of the bed. PO further argues that “there is no disclosure of the mounting holes extending through the bottom of the bed as described and claimed.” However, the claims recite “each of the plurality of mounting flanges comprising a bolt hole extending through the bottom,” which can be understood to mean that the mounting holes extend through the flanges which are not claimed as being part of the bottom.

With respect to the “picking and choosing” argument presented on page 7, the Office action clearly states how it would have been obvious to provide the bed 8 with mounting plant is having bolt holes to secure the bed to the floor.

With respect to Auburn, the argument that the recessed bottom of Auburn is not generally parallel to the top is not understood since this is exactly what is shown in figure 3 of Auburn.

The argument that Auburn teaches away from the combination, and teaches away from flanges is on a bed is also not understood. The rejection set forth in Ground 1 does not apply for flanges to the bed of Auburn.

The argument presented in lines 23-27 of page 8 are without merit because PO has argued a rejection which does not exist except as presented on this page by PO. In the rejection set forth in Ground 1, Auburn is clearly not the base reference.

On page 9, PO argues that the recessed pocket 82 of Auburn is not in the bottom, but that “it is the airspace between the raised bottom wall and the floor.” This argument is not persuasive at least because claim 1 does define any structural features

Application/Control Number: 90/014,844
Art Unit: 3993

Page 21

of the bottom and merely sets forth “a recessed pocket in the bottom.” In figure 3, Auburn clearly discloses a recess in the bottom.

The statement in lines 12-13 of page 9 that “a single reference of the recessed bottom may not be used to assert disclosure of both the bottom and a recessed pocket in the bottom as claimed in the ‘150 patent” is simply not understood and the Examiner cannot respond to this statement.

The arguments presented in the paragraph bridging pages 9-10 are confusing at best. Simply providing a recessed pocket in the bottom of the bed of Glasspec would not result in “a stackable 100+ pound bed,” as argued by PO. There is nothing in the rejection to suggest that the Glasspec bed is being modified to make it stackable, as appears to being argued by PO. Moreover, simply providing a recess in the bottom of a molded bed does not inherently make the bed stackable and the recess could be provided for any number of other reasons. The arguments with respect to the rotationally molded bed of Auburn and the fiberglass bed of Glasspec are noted, however, the claims do not recite the material of the bed, nor do they recite the manner in which the bed is molded.

The arguments that the modification would render the Glasspec bed “unfit for its intensive use environments,” and would somehow also “make the invention of Auburn in operable” are unpersuasive at least because it does not address the rejection as set forth in ground 1. Note again that Auburn is not the base reference and is not being modified.

With respect to the arguments presented in lines 7-19 of page 10 the fact that Karl may teach a chair which is easily moved does not negate the fact that Karl teaches

Application/Control Number: 90/014,844
Art Unit: 3993

Page 22

molded furniture which has a bottom and a recessed pocket in the bottom. With respect to the remainder of that paragraph, PO has once again not address the rejection as set forth in Ground 1.

The arguments presented in the paragraph bridging pages 10-11 are not understood because they do not address the rejection as set forth in Ground 1, and further appear to create an alternate rejection (not the rejection set forth in Ground 1) against which to argue. As noted above with respect to Auburn, Karl is not the base reference and is not being modified.

With respect to claims 8 and 9, it is not clear what PO is arguing on page 11 since the bed 8 of Glasspec clearly has end support bridges and side support ridges.

With respect to claim 15, the arguments are not understood because Glasspec, Auburn, and Karl all teach molded furniture in which an outer shell defines an inner chamber. The ballast chamber argued by PO is neither recited in claim 15 or mentioned in the rejection. However, even if the chamber of Karl is used to contain ballast, the molded furniture still comprises an outer shell defining an inner chamber regardless of what the chamber is intended to be used for. Claim 15 does not define over any of the references.

Ground 2

The argument that “Gladney shows an attempt to backtrack from the claims to try to find something related in the art,” is both not well-taken and not understood. Gladney is analogous art at least because it is a bed which may be made of molded plastic or glass fiber. Gladney does not “teach away from an outer shell” because an outer shell

Application/Control Number: 90/014,844
Art Unit: 3993

Page 23

is shown in figures 2 and 3. Gladney is used for its teaching that the walls of the bed may be corrugated or contain other nonplanar shapes to increase the structural rigidity of the sidewalls. The argument in the 1st 2 lines of page 12 are not understood at least as to how fiberglass beds having smooth sides and rounded corners teaches away from ridges. It should be noted that Gladney is not the base reference as set forth in the rejection.

Ground 3

On page 12, the statement that “the examiner cannot take a statement in the reference out of context and give it a meaning it would not have had to a person skilled in the art,” is not well taken. PO has not pointed out where in the rejection the examiner has allegedly done this.

PO alleges that providing a recess “would render the Glasspec bed inoperable as noted in the Office action.” First, the Office action does not state that the Glasspec bed would become inoperable. Second, PO fails to state exactly how the Glasspec bed would be in operable as argued. While the rejection stated that a compartment in the sidewall of a molded bed could accommodate a person’s feet, for example, the rejection also stated that the intended use of the compartment such as for “storage,” is intended use and does not distinguish the claimed compartment from other compartments.

With respect to the argument of the “nature of the problem to be solved in Karl,” it is noted yet again that Karl is not the base reference. The assertion of a definition of “storage compartment” on page 13 appears to be an improper attempt to import structural limitations into claim 2 when no such structure is recited in the claim.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 24

Ground 4

The recesses or compartments discussed in this rejection are integrally molded into the molded shell of the bed of Glasspec and into one of the generally vertical walls of the molded share of Karl. The arguments that these compartments are not “storage compartments” are not persuasive because the intended use of the compartment is given no patentable weight. The argument with respect to the ganging plate on Karl is irrelevant because Karl is not the base reference and further because claim 3 recites no structural differences between the claimed storage compartment and the recess of Karl.

Formal request for an interview

PO’s request for an interview is noted. Upon reviewing this Office action, and the Response to PO’s arguments, PO should telephone the Examiner at number listed below to discuss a proposed agenda for a possible interview.

Conclusion

THIS ACTION IS MADE FINAL.

A shortened statutory period for response to this action is set to expire **TWO (2) MONTHS** from the mailing date of this action.

Extensions of time under 37 CFR 1.136(a) do not apply in reexamination proceedings. The provisions of 37 CFR 1.136 apply only to “an applicant” and not to parties in a reexamination proceeding. Further, in 35 U.S.C. 305 and in 37 CFR 1.550(a), it is required that reexamination proceedings “will be conducted with special dispatch within the Office.”

Extensions of time in reexamination proceedings are provided for in 37

CFR 1.550(c). A request for extension of time must specify the requested period of extension and it must be accompanied by the petition fee set forth in 37 CFR 1.17(g). Any request for an extension in a third party requested ex parte reexamination must be filed on or before the day on which action by the patent owner is due, and the mere filing of a request will not effect any extension of time. A request for an extension of time in a third party requested ex parte reexamination will be granted only for sufficient cause, and for a reasonable time specified. Any request for extension in a patent owner requested ex parte reexamination (including reexamination ordered under 35 U.S.C. 257) for up to two months from the time period set in the Office action must be filed no later than two months from the expiration of the time period set in the Office action. A request for an extension in a patent owner requested ex parte reexamination for more than two months from the time period set in the Office action must be filed on or before the day on which action by the patent owner is due, and the mere filing of a request for an extension for more than two months will not effect the extension. The time for taking action in a patent owner requested ex parte reexamination will not be extended for more than two months from the time period set in the Office action in the absence of sufficient cause or for more than a reasonable time.

The filing of a timely first response to this final rejection will be construed as including a request to extend the shortened statutory period for an additional two months. In no event, however, will the statutory period for response expire later than SIX MONTHS from the mailing date of the final action. See MPEP § 2265.

Extensions of Time

Extensions of time under 37 CFR 1.136(a) **will not be permitted** in these proceedings because the provisions of 37 CFR 1.136 apply only to "an applicant" and not to parties in a reexamination proceeding. Additionally, 35 U.S.C. 305 requires that ex parte reexamination proceedings "will be conducted with special dispatch" (37 CFR 1.550(a)). Extensions of time in ex parte reexamination proceedings are provided for in 37 CFR 1.550(c).

Notice of Concurrent Proceedings or Litigation

The patent owner is reminded of the **continuing responsibility** under 37 CFR 1.565(a), to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving Patent No. 10,507,150 throughout the course of this reexamination proceeding. The third party requestor is also reminded of the ability to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving the subject patent. See MPEP §§ 2207, 2282 and 2286.

Submissions

In order to ensure full consideration of any affidavits or declarations or other documents as evidence of patentability, such documents must be submitted in response to the first Office action on the merits (which does not result in a close of prosecution). Submissions after the second Office action on the merits, which is intended to be a final action, will be governed by the requirements of 37C.F.R. 1.116, after final rejection and by 37 C.F.R. 41.33 after appeal, which will be strictly enforced.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 27

Service

After filing of a request for *ex parte* reexamination by a third party requester, any document filed by either the patent owner or the third party requester **must** be served on the other party in the reexamination proceeding in the manner provided by § 1.248. The document must reflect service or the document may be refused consideration by the Office. See 37 C.F.R. 1.550(f).

Correspondence

All correspondence relating to this *ex parte* reexamination proceeding should be directed:

By EFS: Registered users may submit via the electronic filing system EFS-Web, at <https://efs.uspto.gov/efile/myportal/efs-registered>

By Mail to: Mail Stop *Ex Parte* Reexam
Attn: Central Reexamination Unit
Commissioner for Patents
United States Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

By FAX to: (571) 273-9900
Central Reexamination Unit

By hand: Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

For EFS-Web transmissions, 37 CFR 1.8(a)(1)(i) (C) and (ii) states that correspondence (except for a request for reexamination and a corrected or replacement request for reexamination) will be considered timely filed if (a) it is transmitted via the Office's electronic filing system in accordance with 37 CFR 1.6(a)(4), and (b) includes a certificate of transmission for each piece of correspondence stating the date of transmission, which is prior to the expiration of the set period of time in the Office action.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 28

Any inquiry concerning this communication or earlier communications from the Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

/RUSSELL D STORMER/
Primary Examiner, Art Unit 3993

Russell D. Stormer
Patent Reexamination Specialist
Central Reexamination Unit
Art Unit 3993
(571) 272-6687

Conferees: /DOR/ David O Reip
Patent Reexamination Specialist, Art Unit 3993

/EILEEN D LILLIS/
SPRS, Art Unit 3993



GLASSPEC
INSTITUTIONAL FURNITURE

ORDERING INFORMATION

PRICES:

All prices listed are F.O.B. factory, Miami, Florida, any applicable sales tax, freight, packing or color matching charges must be added to these. Since prices are subject to change without notice, verify their currency prior to quoting or purchasing.

ACKNOWLEDGEMENTS:

All orders regardless of their size are acknowledged in writing; if one is not received within 10 days of order placement, contact GLASSPEC. Orders will be manufactured and invoiced as per the information in the acknowledgement. If there is a discrepancy in it, please contact GLASSPEC immediately.

The written acknowledgements contain an estimated shipping date; GLASSPEC will make every effort to meet that date and accepts no responsibility beyond that, if an order is shipped before or after that date.

ORDER CHANGES AND CANCELLATIONS:

Acknowledged orders cannot be changed without GLASSPEC's consent. If GLASSPEC agrees to a change or cancellation, the customer agrees to pay the acknowledged unit price for all products made, up to the time GLASSPEC is notified. Cancellations are not accepted once an order has been shipped. Orders for non-standard products are not cancelable.

PHONE ORDERS:

GLASSPEC will accept orders telephoned in; these will be acknowledged and placed in production.

Any discrepancy found between the acknowledgement and the confirming written order will be resolved in GLASSPEC's favor. Failure to confirm within 10 days will cause the order to be dropped from schedule, but will not absolve the buyer from his obligation to pay for all the products made.

TERMS:

- To established accounts: Net 15 days from invoice / shipped date
- To new accounts: Since a credit check can take several weeks, it is highly recommended to first time buyers that they include full payment with the first order, along with 3 trade suppliers and a bank reference.
- Orders for custom products and/or non-standard colors require a 50% deposit with order, regardless of type of account.

Credit terms may be revised or cancelled at GLASSPEC's discretion.

FREIGHT:

Unless otherwise specified by buyer, transportation will be via best way (according to GLASSPEC) by surface carrier, and freight collect. When buyer specifies or circumstances demand (i.e.: U.P.S.) "prepay and add", a service charge in the amount of 15% of the actual freight bill with a \$5.00 minimum will be added to the invoice.

TITLE OF MERCHANDISE:

For the purpose of risk of loss, buyer agrees and acknowledges that, upon delivery of merchandise by GLASSPEC to the carrier or the buyer's agent, title to the goods and risk of loss passes to the buyer. If the goods arrive damaged, the buyer has the sole obligation of seeking any appropriate recourse against the carrier.

For purposes of risk of loss, all shipments are considered F.O.B. factory or F.O.B. shipping point.

SHIPMENT DAMAGE CLAIMS:

GLASSPEC packs all merchandise to comply with known carrier requirements. All shipments must be inspected by consignee before acceptance and any shortage or damage, however minor, must be clearly noted. It is strongly advised that cartons be opened and merchandise inspected for concealed damage as soon as practical after delivery or within 10 days; the carrier must be notified immediately as their responsibility ceases after 15 days. Carrier is not responsible for concealed damages if merchandise is moved to another location before the damage is reported.

RETURNS:

If the merchandise was shipped as per the written acknowledgement, GLASSPEC will not permit its return under any circumstance.

STORAGE:

All orders must be shipped by date acknowledged, unless the buyer informs GLASSPEC, in writing, at least 3 weeks before said date, of his desire to delay shipment. In absence of such notice, if the buyer fails to find suitable storage, GLASSPEC will do so at buyer's expense and placement of merchandise in storage will be considered as "shipped" for billing purposes.

ONE-YEAR LIMITED WARRANTY:

GLASSPEC warrants that all its products will be free from defects in material and workmanship, under normal use and service, for a period of one year from the receipt, installation or start of service, whichever is latest.

This Limited Warranty is not applicable if the product is damaged by accident, improper installation, unreasonable use, lack of proper maintenance, unauthorized repair or modification or any other cause not related to defects in material and/or workmanship.

Proper maintenance consists of rinsing with mild non-abrasive soap solution periodically or after soiling and wiping clean and dry with a soft cloth. A yearly application of fiberglass or other compatible, furniture wax product will keep the color and finish looking its best.

Under this warranty, GLASSPEC's obligations are limited to repair the product at its factory, or replacement of the product at GLASSPEC's option and expense. Any expenses incurred in the removal or reinstallation of the product, its packing and transportation to and from the factory, and other expenses due to lack of its use are not covered by this warranty.

GLASSPEC's authorization to return a product for inspection purposes, must not be construed as its agreement to cover the alleged defect under its warranty.

The warranty is GLASSPEC's only express warranty of the product. This warranty is expressly made in lieu of any other accidental or consequential costs, expenses or damages.

This warranty gives the purchaser specific legal rights. The purchaser may also have other rights which vary from State to State.

FIRE RETARDANT:

When ordering the flame retardant option, the product will be manufactured with resin and additives that yield a Class 1 rating (Flame < 25) on the ASTM E-84 test. If you are looking for other specifications, please contact the factory for price and availability

AMERICAN MADE:

All the products and components manufactured by GLASSPEC are made with American materials and labor, in the United States.

SA102

A52

MANUFACTURING INFORMATION

At GLASSPEC, fiberglass product manufacturing is based on the use of a liquid material, typically a thermosetting polyester resin (vinylesters, urethanes and epoxies are also commonly used) in combination with randomly chopped, continuous strand and/or woven glass fibers.

A chemical reaction initiated in the resin by means of a catalytic agent causes hardening to a strong lightweight final molded part, in which the resin serves as a substrate and the fibers as the reinforcement.

Depending on the characteristics looked for in the final product, wall thickness fluctuates from 1/8" up to 3/4", and different ratios of glass to resin, varying loading of additives into the resin for fire retardant and other purposes, as well as different types of glass fibers are used.

The high quality surface finish is obtained by the previous application of pigmented isothalic gelcoat on the mold surface; this gelcoat gives the product its color as it chemically bonds to the laminate when the laminate is applied. The standard surface finishes are smooth/glossy or textured/matte please refer to individual model description.

Most catalog items can be weighted if required and/or modified to better suit the user; please inquire at the factory.

For assistance in writing a specification, contact the factory with the applicable model number(s).

COLORS:

There are 21 standard colors available, as shown in the color chart. We encourage our customers to send us their color choice for matching -wall paint samples, plastic laminate (i.e.: Formica color chips), fabric swatches are acceptable. There is a \$350.00 net service charge for this service.

DIMENSIONS:

All dimensions are nominal; if exact dimensions are needed, contact the factory and request them.

INQUIRIES:

Direct all inquiries and correspondence to:



GLASSPEC

18735 S.W. 104 Avenue, Miami, FL 33157

(800) 328-0888

(305) 255-8444

Fax: (305) 232-8246

www.glasspec.com

This information supersedes all previously distributed and is subject to change without notice.

1-800-328-0888



TABLE OF CONTENTS

| | |
|--|-----------|
| Cell Furniture | 4 |
| Stackable Cots | 6 |
| Restraining Bed | 7 |
| Free Standing Bed With Closed Sides | 8 |
| Free Standing Bed With Four Legs | 9 |
| SISTEMA® Seating | 10 |
| OPTIMA® Seating | 12 |
| Desk/Work Table | 13 |
| Cruciform Table | 14 |
| Pedestal Table | 15 |
| Glasspec Color Chart | 16 |

SA103

A53

DURAMAX®



CELL FURNITURE



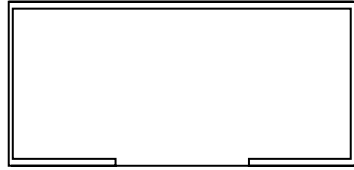
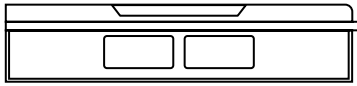
Matching furniture pieces to furnish a cell with. Three different beds with enclosed sides, with or without upper bunks; open shelving in three distinct styles; wall mounted desks in practical sizes and a cylindrical stool to compliment them.

Particular attention has been given to suicide prevention by incorporating sloping surfaces, enclosed sides, rounded corners and one piece construction. Easy to install, easy to maintain, easy to search, built to last.

**SA104
A54**

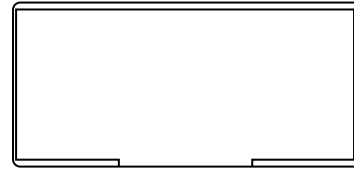
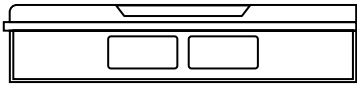
DURAMAX®

CELL FURNITURE



Right Corner Wall Mounted Bed

| MODEL | HEIGHT | WIDTH | LENGTH | WEIGHT |
|---|--------|---------|--------|---------|
| 803221 RC | 21" | 32 1/2" | 80" | 100 lbs |
| Mattress Platform | | 30" | 76" | |
| Storage Compartments 10" high 18" wide 12" deep | | | | |
| Upper bunk with ladder available 58" H, 60 lbs. | | | | |

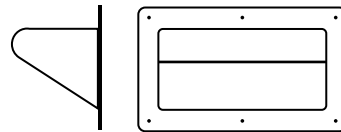


Left Corner Wall Mounted Bed

| MODEL | HEIGHT | WIDTH | LENGTH | WEIGHT |
|---|--------|---------|--------|---------|
| 803221 LC | 21" | 32 1/2" | 80" | 100 lbs |
| Mattress Platform | | 30" | 76" | |
| Mirror image of the 803221 RC, above | | | | |
| Upper bunk with ladder available 58" H, 60 lbs. | | | | |

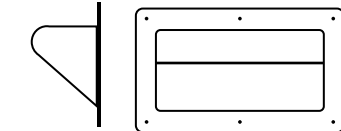
Wall Mounted Bed

| MODEL | HEIGHT | WIDTH | LENGTH | WEIGHT |
|--|--------|---------|--------|---------|
| 803221 C | 21" | 32 1/2" | 80" | 100 lbs |
| Mattress Platform | | 30" | 76" | |
| Storage Compartments 10" high 18" wide 12" deep | | | | |
| Has three enclosed sides and mounts to one wall. | | | | |



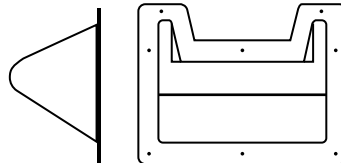
Wall-Hung Writing Surface

| MODEL | HEIGHT | WIDTH | DEPTH | WEIGHT |
|---|--------|-------|-------|--------|
| 2412 WHD | 18" | 30" | 15" | 17 lbs |
| Flat surface dimensions: 24" W x 12" D. | | | | |



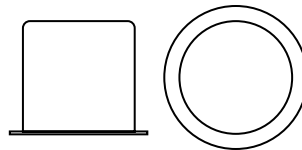
Wall-Hung Writing Surface

| MODEL | HEIGHT | WIDTH | DEPTH | WEIGHT |
|--|--------|-------|-------|--------|
| 249 WHD | 18" | 30" | 12" | 15 lbs |
| Flat surface dimensions: 24" W x 9" D. | | | | |



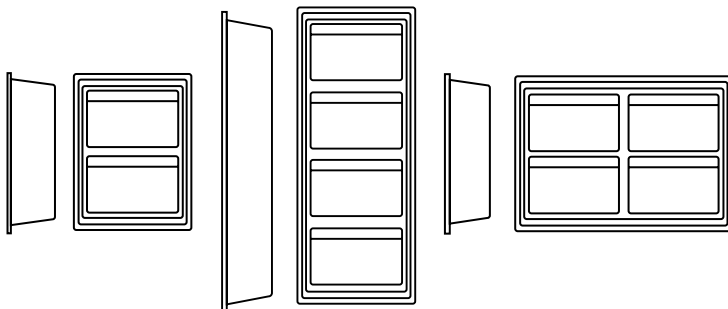
Wall-Hung Writing Surface

| MODEL | HEIGHT | WIDTH | DEPTH | WEIGHT |
|---|--------|-------|-------|--------|
| 2015 WHD | 22" | 30" | 15" | 18 lbs |
| Flat surface dimensions: 20" W x 14" D. | | | | |



Cylindrical Stool

| MODEL | HEIGHT | DIAMETER | WEIGHT |
|-------------------------------------|--------|----------|--------|
| 1616 S | 16" | 20" | 11 lbs |
| Seating surface is 16" in diameter. | | | |



2-Shelf Vertical Shelving Unit

| MODEL | HEIGHT | WIDTH | WEIGHT |
|---------------------------|--------|-------|--------|
| 2432 S | 35" | 28" | 29 lbs |
| Each shelf: 19" W x 10" D | | | |

4-Shelf Vertical Shelving Unit

| MODEL | HEIGHT | WIDTH | WEIGHT |
|---------------------------|--------|-------|--------|
| 2460 S | 63" | 28" | 45 lbs |
| Each shelf: 19" W x 10" D | | | |

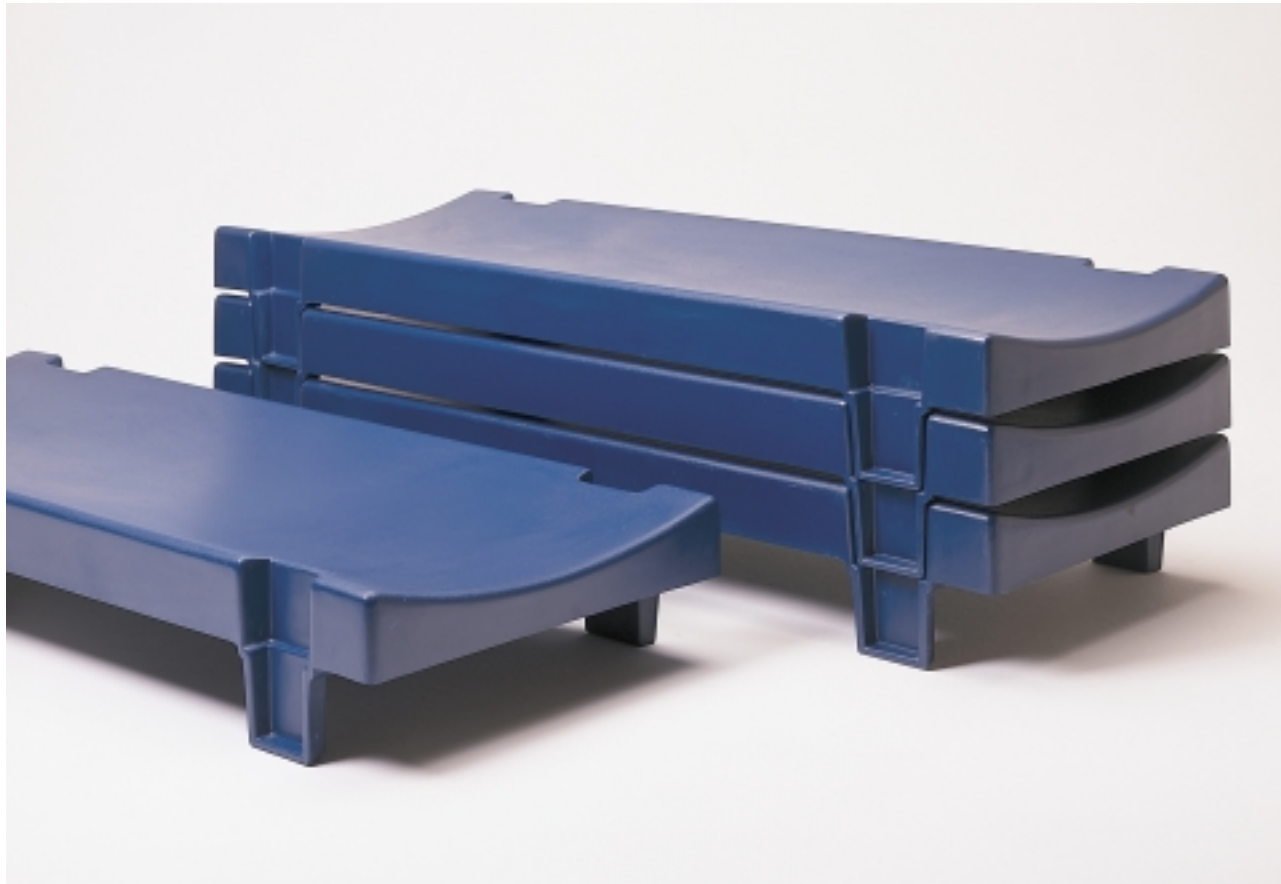
4-Shelf Horizontal Shelving Unit

| MODEL | HEIGHT | WIDTH | WEIGHT |
|---------------------------|--------|-------|--------|
| 4432 S | 35" | 49" | 54 lbs |
| Each shelf: 19" W x 10" D | | | |

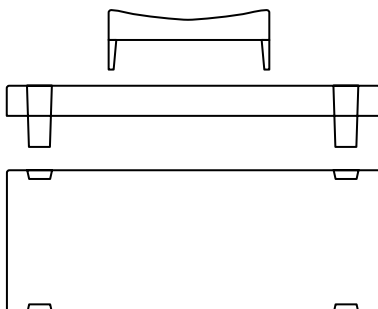
All the above has matte texture surface finish and must be fastened to walls and/or floor; fasteners not included.

SA105

A55

DURAMAX®**STACKABLE COTS**

When the dormitory space must fulfill other daytime functions, such as lunchroom and day-room, these lightweight stackable cots can be stored out of the way in a fraction of their space. Extremely comfortable regardless of the mattress used, they offer all the advantages of fiberglass construction: one-piece design, no components, molded-in colors, lightweight, ease of cleaning with soap and water. The textured matte surface finish is stain resistant and non-absorbing.

**Stackable Cot**

| MODEL | HEIGHT | WIDTH | LENGTH | WEIGHT |
|---------|---------|-------|--------|--------|
| DURACOT | 10 1/2" | 30" | 75" | 45 lbs |

SA106
A56

DURAMAX®



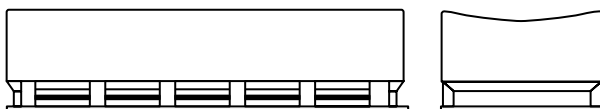
BED WITH SIDE BARS



The bed is molded in one piece, it is enclosed on all four sides, has a curved top for added comfort and a slightly textured surface finish.

It can be permanently attached through the recessed base. Two, 1/2" diameter steel rods are fitted into the base recess, and anchored every 10", to allow for attaching restraints along the full length of the bed, according to the person's height.

The restraints and soft pads are optional.



Bed With Side Bars

| MODEL | HEIGHT | WIDTH | LENGTH | WEIGHT |
|-------------------|--------|-------|--------|--------|
| 307516 BR | 16" | 30" | 75" | 90 lbs |
| Mattress Platform | | 30" | 75" | |

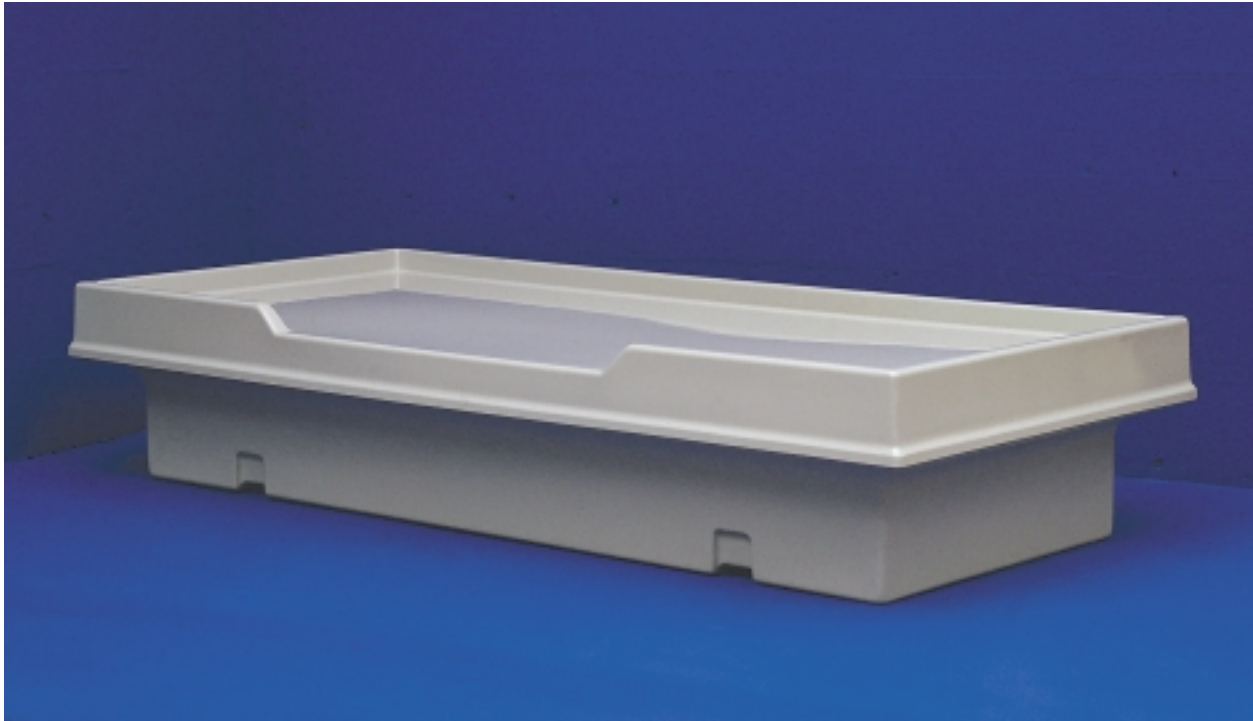
SA107

A57

DURAMAX®



FREE STANDING BED / CLOSED SIDES



Our free-standing closed sides bed borrows from both the corner wall-mounted and the four-legged models. As a freestanding unit, it can simply be set in place, or it can be weighted or bolted to the floor to restrict its mobility. With its fully enclosed sides, it offers an added measure of security and safety.

Or perhaps you just like how it looks! Molded in one piece, with no components to come off, these beds have rounded corners, built-in colors and all the other features you get only from fiberglass, with smooth glossy surface.



Platform, Free-Standing Bed

| MODEL | HEIGHT | WIDTH | LENGTH | WEIGHT |
|-------------------|--------|-------|--------|---------|
| 37916 B | 16" | 36" | 79" | 95 lbs |
| 37916 B/E* | 16" | 36" | 79" | 110 lbs |
| Mattress Platform | | 33" | 76" | |

* Enclosed Bottom

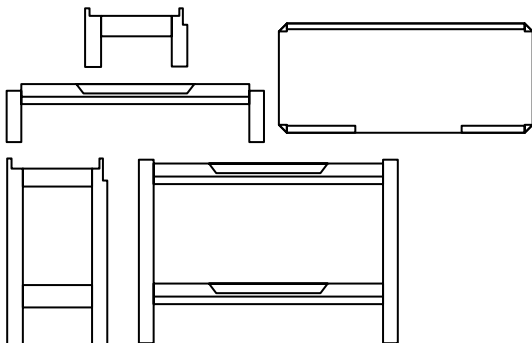
SA108

A58

DURAMAX®**FREE STANDING BED AND BUNK**

This four-legged free-standing bed is our most popular model. Its triangular legs are designed to allow fastening to the floor, if required. A contemporary molded unit with built-in colors that completely disguise its utilitarian nature.

It can be purchased as a bunk or one can be added in the field at any time. The bunk supports, that bolt on, are made of steel and painted to match.

**Free-Standing Four-Legged Bed**

| MODEL | HEIGHT | WIDTH | LENGTH | WEIGHT |
|-------------------|--------|-------|--------|--------|
| 347918 FSB | 18" | 34" | 79" | 85 lbs |
| Mattress Platform | | 30" | 79" | |

Free-Standing Four-Legged Upper & Lower Bunk

| MODEL | HEIGHT | WIDTH | LENGTH | WEIGHT |
|--------------------------------------|--------|-------|--------|---------|
| 347918 FSB/BUNK | 55" | 34" | 79" | 205 lbs |
| Mattress Platform | | 30" | 79" | |
| Headroom without mattress is 31 1/2" | | | | |

SA109**A59**

SISTEMA®



MODULAR SEATING GROUP



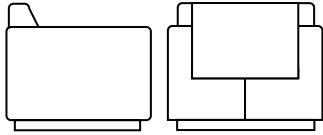
A system of four mechanically attached modules, the SISTEMA® furniture group can be arranged in an infinite number of ways with or without intermediate arms and in combination with the tables and planters.

The one-piece upholstered shell is attached with adhesive or left loose. Standard upholstery material is vinyl, or seating can be ordered with rigid textured fiberglass insert in the same or contrasting color. The size and weight of a multiseat unit deters its unauthorized movement.

SA110
A60

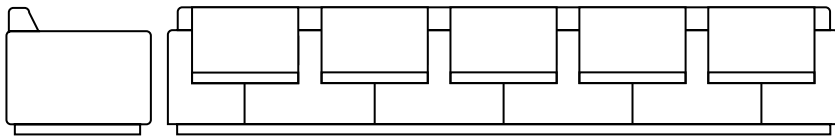
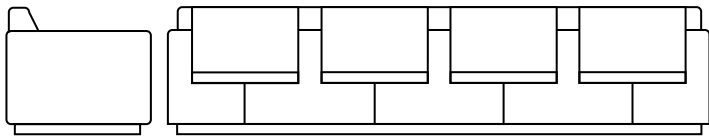
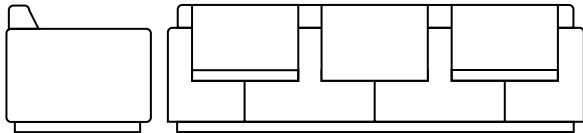
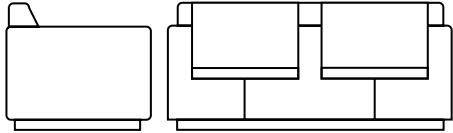
SISTEMA®

MODULAR SEATING GROUP



TYPICAL DIMENSIONS
 ARM HEIGHT 21 1/2"
 ARM WIDTH 5"
 SEAT HEIGHT 16"
 SEAT WIDTH 22"
 BASE HEIGHT 3"
 BASE RECESS 1 3/4"

Units with more than Five (5) seats are available; Call the factory for information



Single Seat Unit

| MODEL | HEIGHT | WIDTH | DEPTH | WEIGHT |
|--------|--------|-------|-------|--------|
| S-1 UA | 27" | 32" | 30" | 52 lbs |

Two Seat Unit With Intermediate Arm

| MODEL | HEIGHT | WIDTH | DEPTH | WEIGHT |
|--------|--------|-------|-------|--------|
| S-2 UA | 27" | 59" | 30" | 85 lbs |

Without intermediate, arm width is 55" (please Specify)

Three Seat Unit With Intermediate Arm

| MODEL | HEIGHT | WIDTH | DEPTH | WEIGHT |
|--------|--------|-------|-------|---------|
| S-3 UA | 27" | 86" | 30" | 117 lbs |

Subtract 5" from width for each intermediate arm deleted and specify location.

Four Seat Unit With Intermediate Arm

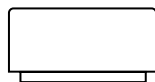
| MODEL | HEIGHT | WIDTH | DEPTH | WEIGHT |
|--------|--------|-------|-------|---------|
| S-4 UA | 27" | 113" | 30" | 143 lbs |

Subtract 5" from width for each intermediate arm deleted and specify location.

Five Seat Unit With Intermediate Arm

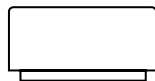
| MODEL | HEIGHT | WIDTH | DEPTH | WEIGHT |
|--------|--------|-------|-------|---------|
| S-5 UA | 27" | 140" | 30" | 169 lbs |

Subtract 5" from width for each intermediate arm deleted and specify location.



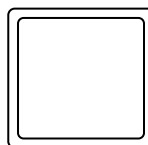
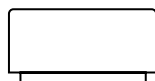
Square Table

| MODEL | HEIGHT | WIDTH | DIAMETER | WEIGHT |
|-------|--------|-------|----------|--------|
| S-STA | 16" | 30" | 30" | 46 lbs |



Corner Table Quarter Circle

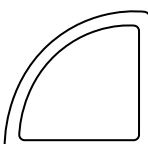
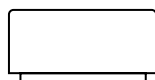
| MODEL | HEIGHT | WIDTH | DIAMETER | WEIGHT |
|-------|--------|-------|----------|--------|
| S-CTA | 16" | 30" | 30" | 39 lbs |



Square Planter

| MODEL | HEIGHT | WIDTH | DIAMETER | WEIGHT |
|-------|--------|-------|----------|--------|
| S-SPA | 16" | 30" | 30" | 27 lbs |

Inside Dimension: 26 1/2" square



Corner Planter Quarter Circle

| MODEL | HEIGHT | WIDTH | DIAMETER | WEIGHT |
|-------|--------|-------|----------|--------|
| S-CPA | 16" | 30" | 30" | 23 lbs |

Width of lip: 1 3/4"

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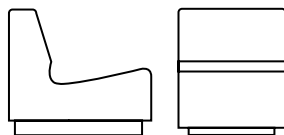
OPTIMA®



MODULAR SEATING GROUP

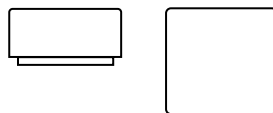


Ideal when sanitary, weather exposure or security conditions preclude the use of upholstery. The OPTIMA® series offers a sturdy, yet comfortable, and economical alternative to bench seating. Consisting of modular pieces, there is no limit as to how many can be joined in a row or combined with tables and back-to-back units to create different groupings. Available in matte textured surface finish.



Single Seat Unit

| MODEL | HEIGHT | WIDTH | DEPTH | WEIGHT |
|-------|--------|-------|-------|--------|
| OPT-S | 27" | 22" | 30" | 32 lbs |



Square Table

| MODEL | HEIGHT | WIDTH | DEPTH | WEIGHT |
|-------|--------|-------|-------|--------|
| OPT-T | 16" | 30" | 30" | 46 lbs |

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DESK/WORK TABLE



Molded in one piece, the absence of fasteners and components will make these tables outperform anything in its class, whether in individual rooms, classrooms or as work tables.

Available in high gloss smooth finish, all sizes can be permanently attached to the floor, through a bottom flange, or to each other.

Their underside is not molded.

Rectangular Table/Desk

| MODEL | DEPTH | HEIGHT | WIDTH |
|------------------------|-------|--------|-------|
| 30229 T | 24" | 29" | 30" |
| 36229 T | 24" | 29" | 36" |
| 53029 T | 30" | 29" | 60" |
| 53029 D (closed front) | 30" | 29" | 60" |

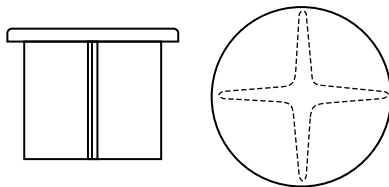
All of these are available in lower heights for youths.
Shelf 12" wide is optional

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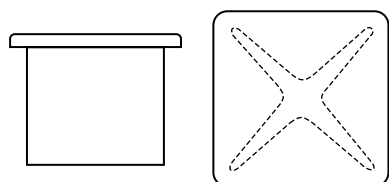
CRUCIFORM TABLE

The strongest, most stable freestanding table of molded fiberglass construction. Made into one piece without fasteners, wood or metal components to be concerned about. It can be weighted to further restrict mobility or may be permanently fastened. The base design prevents interference between the occupants. Smooth glossy surface finish. Fiberglass will not absorb foodstuffs, and can be washed with non-abrasive detergents and water.



Cruciform Base With Round Top

| MODEL | DIA | HEIGHT | WT |
|-----------|-----|--------|--------|
| 4230 RT/F | 42" | 30" | 73 lbs |



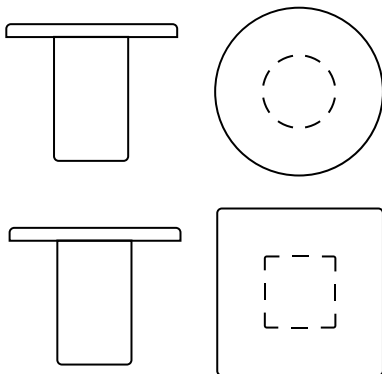
Cruciform Base With Square Top

| MODEL | SQ | HEIGHT | WT |
|-----------|-----|--------|--------|
| 4230 ST/F | 42" | 30" | 85 lbs |

PEDESTAL TABLES



A hollow pedestal permanently joined to the table top, without mechanical attachments to work loose. These pedestals come in three sizes, according to the size of the top, and they must be filled with sand, gravel or cement for stability. Table tops come in three sizes in either round or square shape. All table tops are available individually for mounting on your frames, see the price list for sizes.



Round Table

| MODEL | DIA | HEIGHT | DIA/BASE | WT |
|-----------|-----|--------|----------|--------|
| 3630 RT/P | 36" | 30" | 16" | 30 lbs |
| 4230 RT/P | 42" | 30" | 20" | 40 lbs |
| 6030 RT/P | 60" | 30" | 24" | 60 lbs |






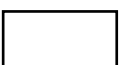

Square Table

| MODEL | SQ | HEIGHT | DIA/BASE | WT |
|-----------|-----|--------|----------|--------|
| 3630 ST/P | 36" | 30" | 16" | 30 lbs |
| 4230 ST/P | 42" | 30" | 20" | 44 lbs |
| 6030 ST/P | 60" | 30" | 24" | 69 lbs |

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COLORS

| | | | | | |
|---|-----------|---|-----------------|---|---------|
|  | Black |  | Hunter's Green |  | Coral |
|  | Gunmetal |  | Teal |  | Red |
|  | Fog |  | Regimental Blue |  | Crimson |
|  | Greystone |  | Medium Blue |  | Brown |
|  | Blue/Grey |  | Powder Blue |  | Taupe |
|  | Ivory |  | White |  | Putty |
| Slate Matrix | | Blue Matrix | | Mocha Matrix | |

These colors are printed reproductions of the actual fiberglass.
If the color must match exactly, contact the factory to request a color chip.



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A66

US005490292A

United States Patent [19]**Auburn**[11] **Patent Number:** **5,490,292**[45] **Date of Patent:** **Feb. 13, 1996**[54] **COT**

5,203,041 4/1993 Alonso 5/420

[76] **Inventor:** **David M. Auburn**, 9762 W. Ken Caryl
Dr., Littleton, Colo. 80127**FOREIGN PATENT DOCUMENTS**

941445 4/1956 Germany 5/110

[21] **Appl. No.:** **29,139**[22] **Filed:** **Mar. 10, 1993**[51] **Int. Cl.⁶** **A47C 19/00; A47C 21/00**[52] **U.S. Cl.** **5/8; 5/400; 5/401; 5/498;**
5/510; 5/655[58] **Field of Search** **5/400, 401, 402,**
5/420, 498, 8, 10, 510, 655**OTHER PUBLICATIONS**

Kiddy Kot Product Brochure, Apr. 1979.

EC classroom furnishings catalog pp. 10-13 admitted prior art.

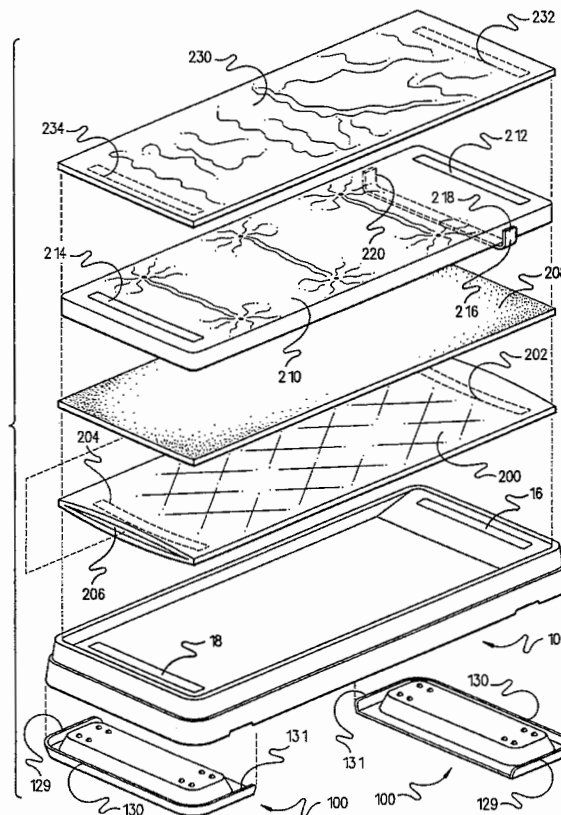
Cots & Accessories catalog 3 pgs. admitted prior art.

Primary Examiner—Michael J. Milano[56] **References Cited****U.S. PATENT DOCUMENTS**

| | | | |
|-----------|---------|-------------------|-------|
| 2,672,628 | 3/1954 | Spanel . | |
| 2,751,268 | 6/1956 | Creelman | 5/420 |
| 2,876,020 | 6/1959 | Murchie | 5/510 |
| 3,732,585 | 5/1973 | Krehbiel | 5/400 |
| 3,835,482 | 9/1974 | Tersch | 5/420 |
| 4,234,977 | 11/1980 | Snow . | |
| 4,250,580 | 2/1981 | Eichenaver . | |
| 4,522,381 | 6/1985 | Ludwick | 5/655 |
| 4,530,123 | 7/1985 | Mathou . | |
| 4,583,252 | 4/1986 | McCourt | 5/110 |
| 4,745,643 | 5/1988 | Clarke | 5/8 |
| 4,756,042 | 7/1988 | Genovese . | |
| 4,935,973 | 6/1990 | Behrman | 5/655 |
| 4,964,183 | 10/1990 | LaForce, Jr. | 5/421 |
| 5,092,010 | 3/1992 | Wong | 5/498 |

[57] **ABSTRACT**

A one piece rotationally molded cot for toddlers and other individuals includes a recessed sleeping surface supported above a raised bottom wall by a plurality of upwardly extending pillars. A closed dead air space between the bottom wall and sleeping surface and an additional air space beneath the bottom wall and above the room floor provide insulation for warmth. The cots nest in stacked relation for storage in minimum space. Dollies configured for conforming engagement beneath head and foot ends of the cots include swivel casters to facilitate transportation. Accessory items for use with the cot include a foam pad receivable in a fabric pad cover, a mattress, and a sheet. Cooperating VELCROTM fasteners secure the cover to the cot and the sheet to the mattress.

20 Claims, 5 Drawing Sheets

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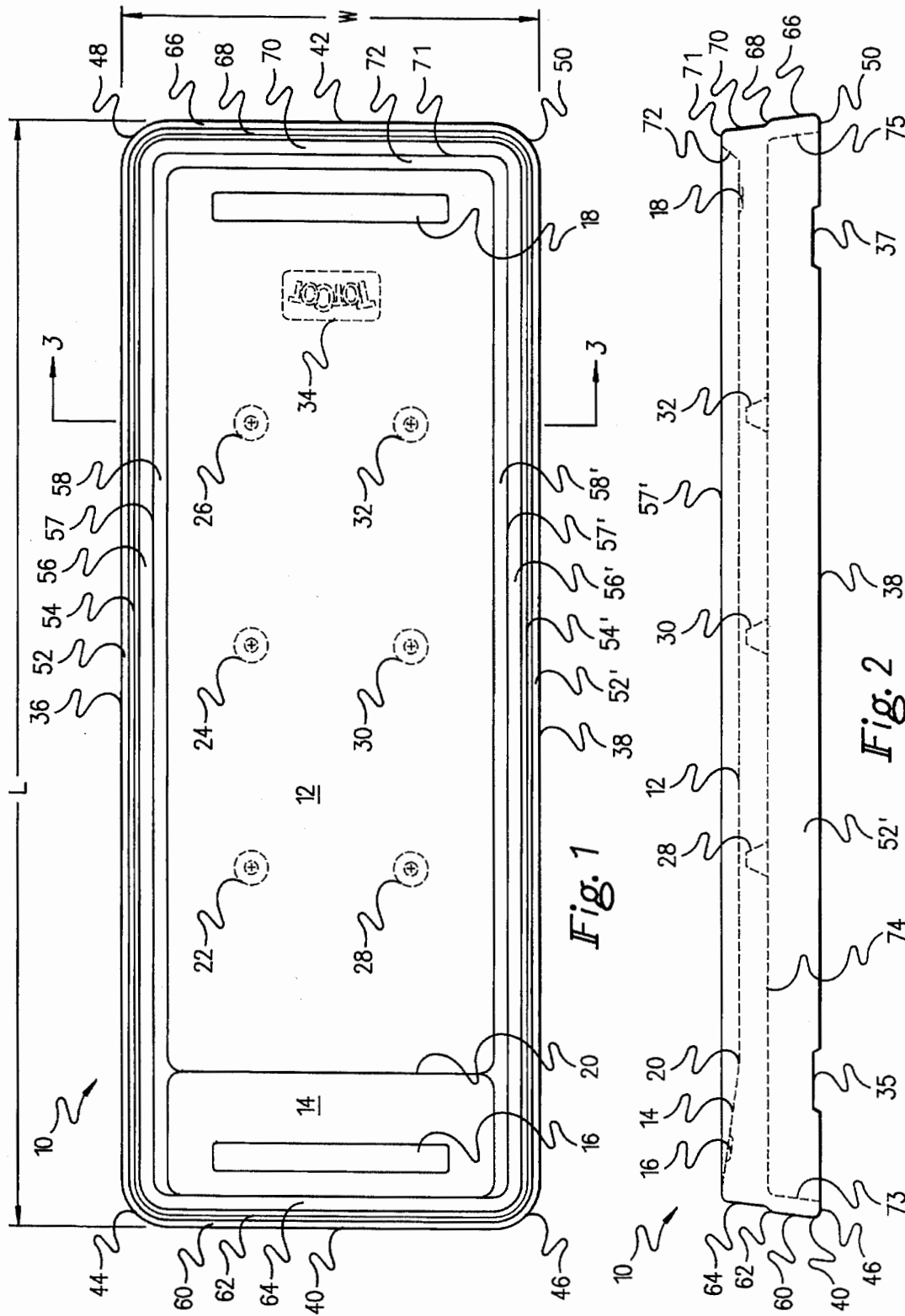
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U.S. Patent

Feb. 13, 1996

Sheet 1 of 5

5,490,292



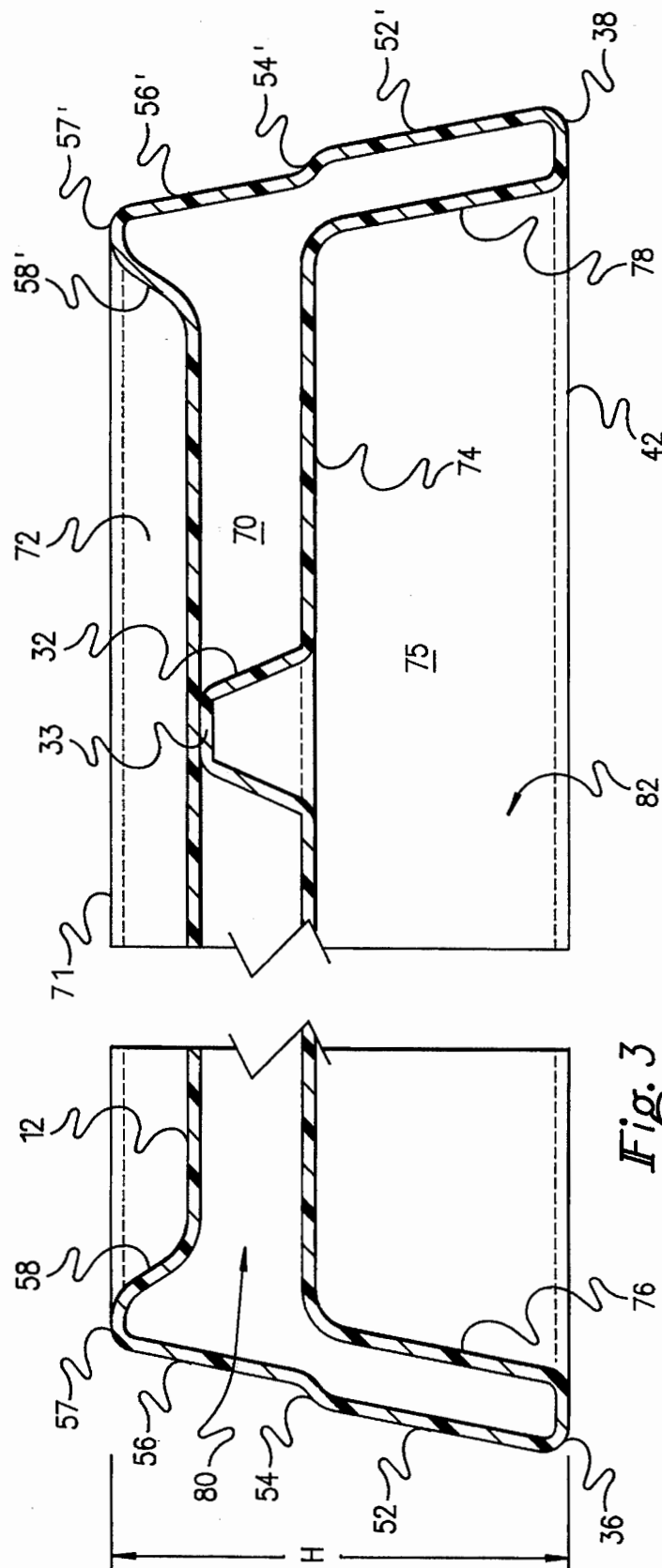


Fig. 3

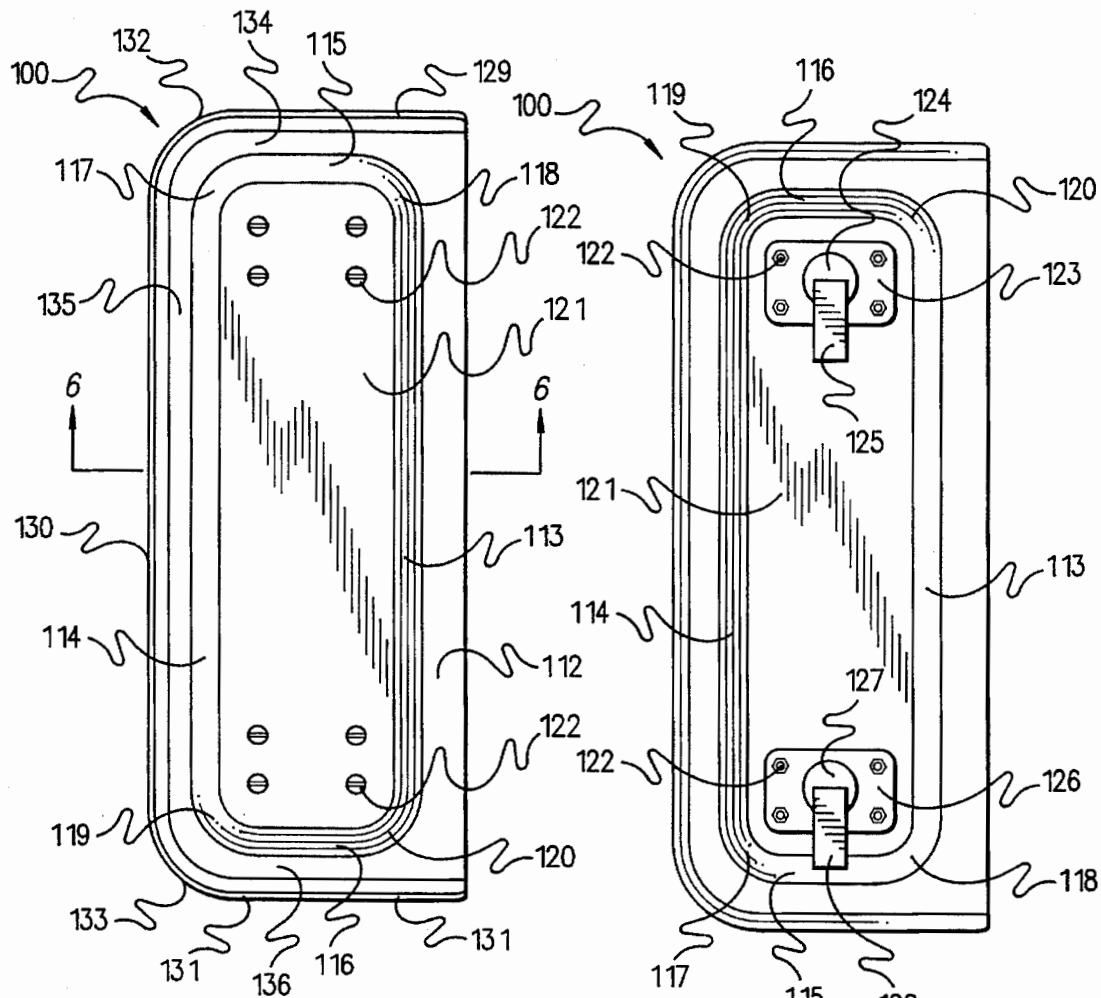


Fig. 4

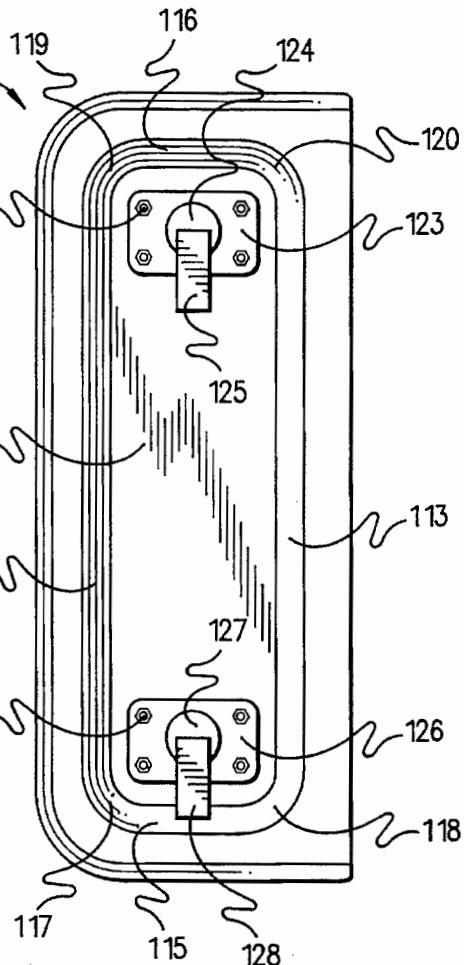


Fig. 5

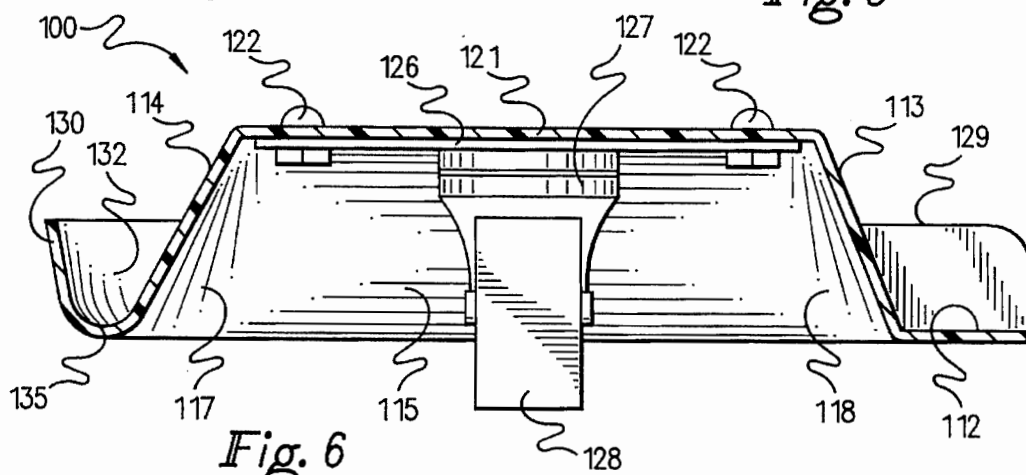


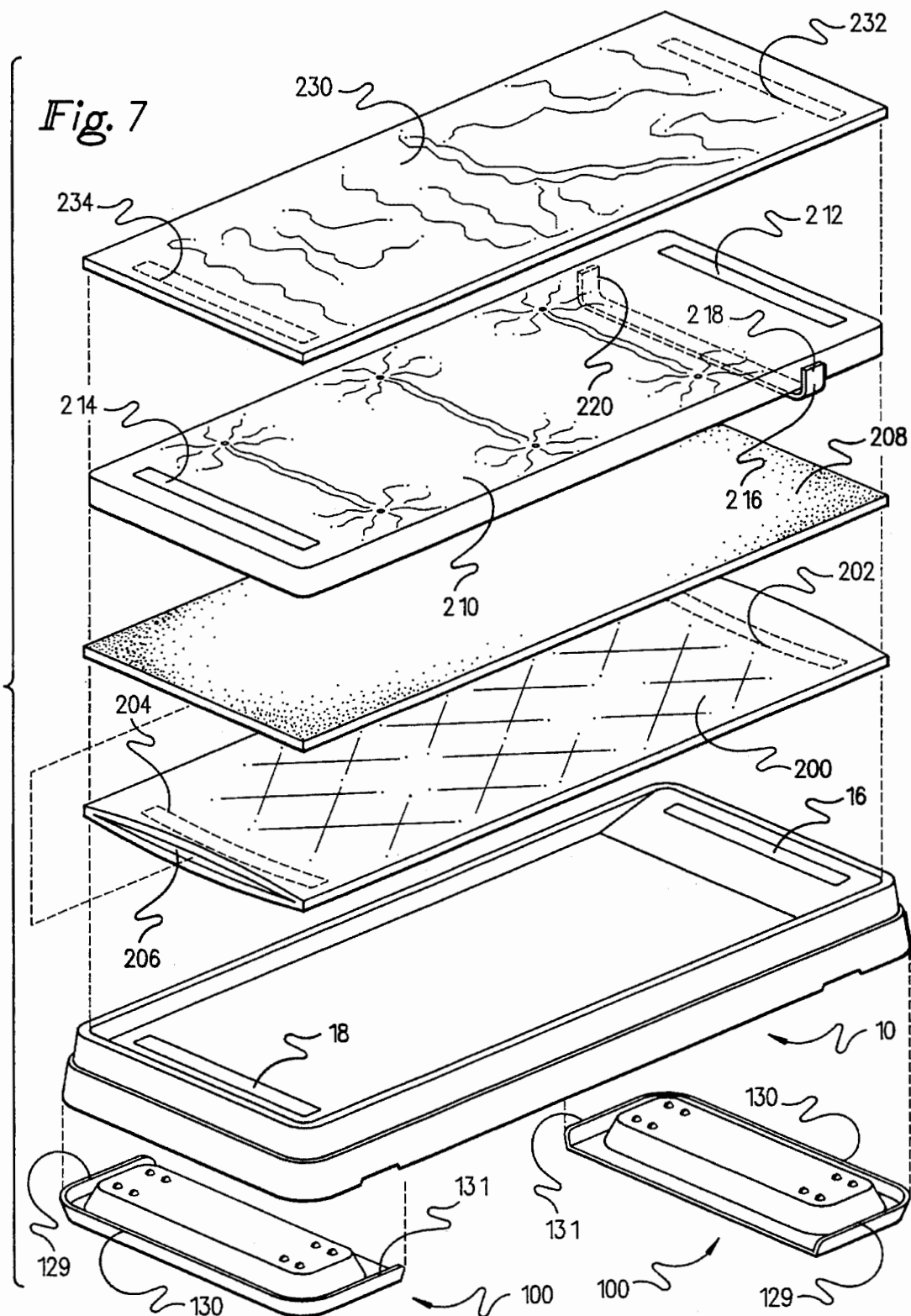
Fig. 6

U.S. Patent

Feb. 13, 1996

Sheet 4 of 5

5,490,292

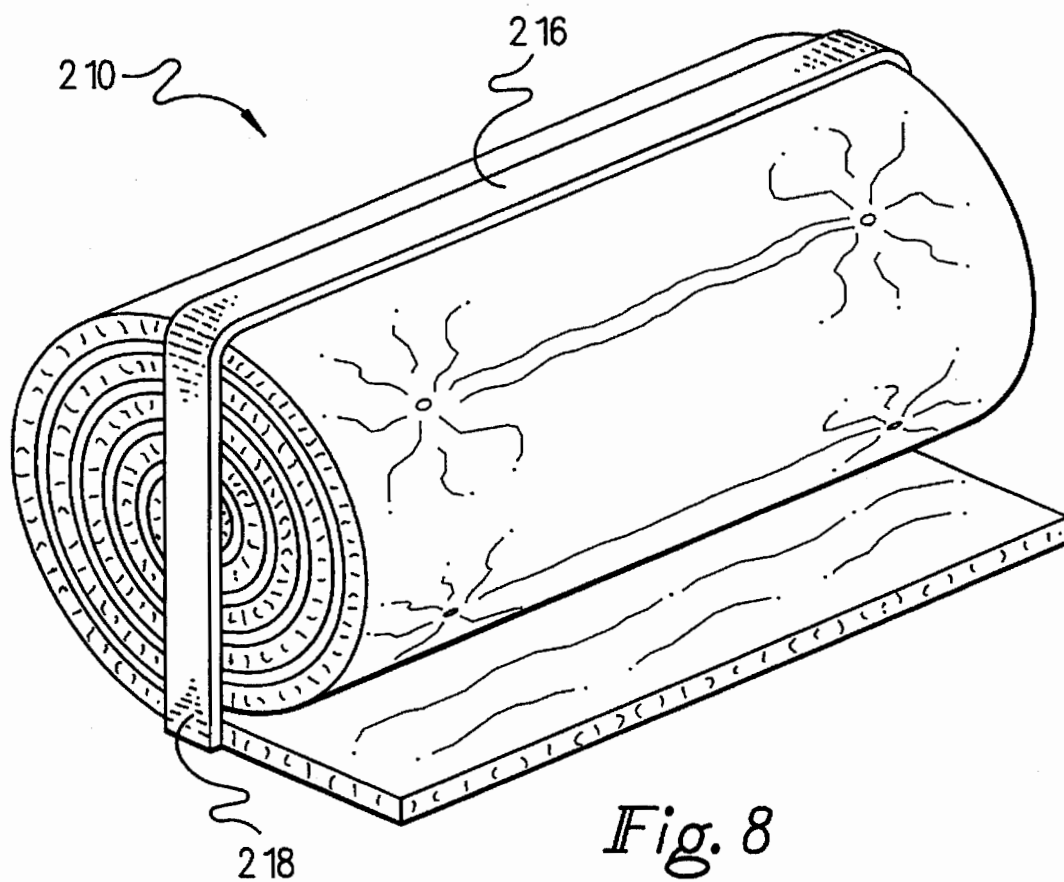


U.S. Patent

Feb. 13, 1996

Sheet 5 of 5

5,490,292



5,490,292

1 COT

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to cots, and more particularly pertains to an improved cot particularly adapted for use by toddlers in day care centers and also by adults and other individuals in refugee shelters, camps, or similar facilities. Day care centers typically employ cots for use by small children taking daily naps. Cots serve the purpose of supporting children above cold and dirty room floors, and additionally provide a regular sleeping environment which promotes organized and scheduled napping. Important considerations for such cots include low cost, convenient transportation and storage, durability, and ease of cleaning and sanitizing. The cot must also provide a warm, safe, and comfortable sleeping surface for small children and other individuals.

2. Description of the Prior Art

Prior art cots typically include a wood, steel, or aluminum frame with a cloth cover stretched thereover. Such cots are difficult to store and clean. U.S. Pat. No. 4,234,977 issued on Nov. 25, 1980 to B. Snow discloses a one piece cot vacuum molded from a thin sheet of plastic and including a recessed contoured sleeping surface spaced above outwardly extending floor contact flanges. A plurality of the one-piece molded cots may be stacked for storage. The cot disclosed by Snow possesses exposed flange edges which create the potential for injury to small children and other individuals and also separates the sleeping surface from the typically cold floor surface by only an open air space. Due to the open bottom construction, the cot disclosed by Snow possesses limited structural rigidity and load bearing capacity. Further, the cot of Snow does not provide for the convenient securement of accessory linen items nor is it susceptible of manufacture by a rotational molding process. The vacuum molding process employed in forming the cot of Snow results in stress points in the finished cots where the plastic sheet stock material is deformed to conform with the die. In use, the stress points fracture, creating cracks which pinch and cut a user's skin.

SUMMARY OF THE INVENTION

In order to overcome the disadvantages of prior art cots and to achieve other objects of the invention set forth herein, the present invention provides a one piece rotationally molded improved cot for toddlers and other individuals which includes a recessed sleeping surface supported above a raised bottom wall by a plurality of upwardly extending pillars. A closed dead air space between the bottom wall and sleeping surface and an additional air space beneath the bottom wall and above the room floor provide insulation for warmth. The cots nest in stacked relation for storage in minimum space, while maximizing useable sleeping surface area. Dollies configured for conforming engagement beneath head and foot ends of the cots include swivel casters to facilitate transportation. Accessory items for use with the cot include a foam pad receivable in a fabric pad cover, a mattress, and a sheet. Cooperating VELCRO (TM) fasteners secure the cover to the cot and the sheet to the mattress.

There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are, of course, additional features

2

of the invention that will be described hereinafter and which will form the subject matter of the claims appended hereto. In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting. As such, those skilled in the art will appreciate that the conception, upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of the cot according to the present invention.

FIG. 2 is a side elevational view of the cot according to the present invention.

FIG. 3 is a transverse cross sectional view taken along line 3—3 of FIG. 1.

FIG. 4 is a top perspective view illustrating a dolly for facilitating transportation and storage of the cot according to the present invention.

FIG. 5 is a bottom perspective view illustrating the dolly of FIG. 4.

FIG. 6 is a transverse cross sectional view taken along line 6—6 of FIG. 4.

FIG. 7 is an exploded perspective view illustrating the cot according to the present invention along with dolly, pad, pad cover, mattress, and sheet accessory components.

FIG. 8 is a perspective view illustrating the mattress accessory component disposed in a rolled condition for transportation.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT(S)

Referring now to the drawings, wherein like reference numerals designate corresponding structure throughout the views, and referring in particular to FIGS. 1, 2, and 3, an improved cot 10 according to a preferred embodiment of the invention dimensioned for use by toddlers possesses a generally rectangular shape, with a preferred length L of about 48 inches, width W of about 21 inches, and height H of about 4.25 inches. Within the scope of this disclosure and the appended claims, the term "cot" is used in a broad sense to include both temporary and permanent small and full size beds designed for supporting a resting or sleeping human or animal. The cot 10 may be formed in a wide variety of different sizes for use by different individuals. For example, a cot for use by adults may be about 2 meters in length and about 0.75 meters in width. The cot 10 is preferably one piece, and rotationally molded from a somewhat resilient, fire retardant plastic material such as linear low density polyethylene of the type designated in the industry as EXXON 8556.67 or the equivalent. As a higher production alternative to rotational molding, a blow molding process in which the walls of an extruded heated plastic tube are blown

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3

outwardly against suitably formed mold surfaces to form the cot may also be employed without departing from the scope of the present invention. The cot 10 includes a recessed substantially planar sleeping surface 12 intersecting an inclined head rest surface 14 along a transverse intersection 20. Elongated rectangular recessed zones 16 and 18 disposed adjacent head and foot ends of the cot, respectively, receive pile fastener strips of the type sold under the trademark VELCRO for the purpose of securing a fabric pad cover to be described subsequently. A plurality of frusto conical pillars 22, 24, 26, 28, 30, and 32 extend upwardly in three spaced transversely aligned pairs from a raised bottom wall 74. As shown in FIG. 3, each of the pillars, for example pillar 32, includes a flat circular top surface 33 disposed in abutment with the bottom face of the sleeping surface 12, thus providing additional and substantially uniform support. The flat top surfaces of the pillars may be initially spaced slightly below the sleeping surface 12, such that an individual's weight causes abutment.

A rectangular slightly recessed indicia zone 34 on the sleeping surface 12 adjacent the foot end of the cot 10 includes integrally molded indicia, for example a trademark, company name, model designation, etc.

The cot 10 includes opposite longitudinal bottom edge portions 36 and 38 adapted to rest on the surface of a room floor. As shown in FIG. 2, hand grip notches 35 and 37 may be provided in the longitudinal bottom edge portions to facilitate lifting of the cot 10. Preferably, four such notches are provided in laterally aligned pairs, with two notches in each of the two opposite longitudinal bottom edge portions 36 and 38. The notches may be about 0.5 inches in height and 4 inches long. Opposite end edge portions 40 and 42 connect longitudinal bottom edge portions 36 and 38 via 90 degree radius corners 44, 46, 48, and 50. The construction of both of the longitudinal sides of the cot is symmetrical, and thus identical reference numerals differentiated by a prime symbol (') have been employed to designate corresponding elements. The bottom edge portions 36 and 38 are defined by a 180 degree radius bend of a single sheet of material resulting from a rotational molding process. Thus, no sharp, rough, or straight edges exist to create the potential for injury to individuals or mar floors. Lower exterior side wall portions 52, 52' incline upwardly and slightly inwardly (about 11 degrees from vertical) to a radiused shoulder intersection 54, 54' with an upper exterior side wall portion 56, 56' also preferably inclined about 11 degrees from vertical. The opposite upper side wall portions 56 and 56' each terminate at a radiused bend 57, 57' terminating in a downwardly and inwardly inclined inner upper side wall portion 58, 58'. Inner upper side wall portions 58, 58' merge smoothly with planar sleeping surface 12, providing peripheral support for the sleeping surface 12 along the longitudinal side edges.

The head end of the cot 10 includes an upwardly and inwardly inclined lower head end wall portion 60 which intersects an upwardly and inwardly inclined upper head end wall portion 64 along a radiused shoulder 62. The foot end of the cot 10 similarly possesses an upwardly and inwardly inclined lower foot end wall portion 66 which intersects an upwardly and inwardly inclined upper foot end wall portion 70 along a radiused shoulder 68. The upper foot end wall portion 70 terminates at a radiused bend 71 which merges with sleeping surface 12 via downwardly and inwardly inclined inner upper foot wall portion 72.

As shown in FIGS. 2 and 3, the lower portion of the cot 10 possesses a double wall construction which includes interior lower foot end wall 75 connecting opposite lower

4

interior side walls 76 and 78. Lower interior foot end wall 75 and an opposite symmetrical lower interior head end wall 73 (FIG. 2), in conjunction with raised bottom wall 74 and interior side walls 76 and 78, defines an open-bottomed recess 82 which serves two purposes. First, the recess 82 is dimensioned to receive an upper portion of another identical cot 10, such that a plurality of cots 10 may be stored in stacked nested relation in a minimum amount of space. In this context, the bottom edges of each stacked cot rest upon the peripheral side wall and end wall radiused shoulders of the cot below. Second, the recess 82 provides an insulating air space between the sleeping surface 12 and the typically cold room floor upon which the cot is disposed. By virtue of the closed curve construction of the rotationally molded cot 10, an entirely closed additional insulating air space 80 is defined between the sleeping surface 12, the raised bottom wall 74, and the side and end wall surfaces. As can be best appreciated with reference to FIG. 3, the vertically spaced air spaces 80 and 82 form dual insulating layers, analogous to the air spaces of a triple pane window. This construction minimizes heat transfer from an individual sleeping on surface 12 to ambient, as compared with conventional cots.

The closed curve construction of the cot 10 allows formation through a rotational molding process in which a mold cavity possessing bounding wall surfaces conforming to the walls of the cot is initially partially filled with a dry plastic resin powder. The mold is then heated to melt the powder and rotated spherically, i.e., simultaneously rotated about two perpendicular central axes of a sphere, such that centrifugal and gravitational forces uniformly distribute or "paint" the liquid resin on the bounding wall surfaces of the mold cavity. The mold is then cooled while rotating to form the finished cot. Thus, the wall thickness of the finished cot is not determined by any predetermined mold dimension, as in injection molding, but rather upon the quantity of resin powder utilized to initially charge the mold. Additionally, since no stretching or deformation of a stock material is involved, the rotational molding process does not produce stress points or zones which weaken the resulting article. The rotational molding process is a known process generally, but its application to the field of cots enabled by the novel cot design of the present invention was heretofore unknown. U.S. Pat. No. 4,756,042, which issued to Vincent P. Genovese et al. on Jul. 12, 1988, the entire disclosure of which is hereby incorporated herein by reference, discloses the use of a rotational molding process to form a one piece housing of a floor polishing machine.

In an alternative construction, a plurality of integral, extensible, or separate selectively attachable legs (not shown) may be provided to support the cot 10 at a greater elevation above a floor or ground surface. Such legs would preferably detach, retract, or fold so as not to interfere with stacking.

With reference to FIGS. 4, 5, and 6, a dolly 100 for the cot 10 of the present invention includes a substantially planar floor 112 from which opposite side walls 113 and 114 and opposite end walls 115 and 116 incline upwardly and inwardly to intersections with a raised planar caster mounting surface 121. Dolly 100 is preferably molded from a 3/8 inch thick, high impact ABS plastic material. As shown in FIG. 2, a plurality of conventional fasteners such as bolts and nuts secure a pair of mounting plates 123 and 126 at opposite ends of the underside of caster mounting surface 121. Swivel bearing assemblies 124 and 127 secure 2 inch diameter caster wheels 125 and 128 in a conventional manner to mounting plates 123 and 126. Side walls 129, 130, and 131 connected by radiused corners 132 and 133

SA124

5,490,292

5

extend upwardly from floor 112 and define respective channels 134, 135, and 136 dimensioned to receive lower side and end wall portions of the cot 10. Inclined wall surfaces 114, 115, and 116 are dimensioned and disposed for engagement with the inclined lower interior side 76, 78 and end 73, 75 wall surfaces of the cot 10, with the top face of caster mounting surface 121 disposed slightly below the bottom side of raised bottom wall 74. (FIG. 3). As shown in FIG. 7, a pair of identical dollies 100 may be nested within opposite end portions of a cot 10, such that side walls 129, 130, and 131 partially overlie lower exterior wall portions of the cot 10. In this manner a plurality of stacked cots 10 may be easily rolled to and from a storage location.

To enhance comfort, a plurality of preferred linen accessory items may be employed in conjunction with the cot 10. As depicted in FIG. 7, a fabric pad cover or envelope 200 includes a lower face provided at opposite ends with hook and loop type pile fasteners (VELCRO™) 202 and 204 disposed and dimensioned for engagement with cooperating fasteners 16 and 18 on cot 10 for the purpose of releasably securing the fabric pad cover 200 in position. The cover 200 is preferably made from a cotton and polyester cloth. An elastomeric closed cell ½ inch thick rectangular foam pad 208 of a conventional construction is dimensioned for removable insertion through an open end 206 of the cover 200. Suitable conventional fasteners such as VELCRO (™), snaps, zippers, etc. may be provided for selectively closing the opening 206. A quilted mattress 210 possesses an upper surface provided at opposite ends with hook and loop pile fasteners (VELCRO™) 212 and 214 adapted for releasable engagement with cooperating fasteners 232 and 234 disposed at opposite ends on an underside of a fabric sheet 230. Thus, both the pad cover 200 and the sheet 230 may be easily removed for machine washing. Alternatively, the mattress 210 may be secured directly to the cot 10 by engaging fasteners 232 and 234 to cooperating fasteners 16 and 18. The mattress 210 is preferably formed from a cotton and polyester fabric filled with polyester fiber.

As shown in FIGS. 7 and 8, the mattress 210 preferably includes a laterally extending elastic band 216 sewn to the mattress 210 at opposite medial side portions 218 and 220. The band 216 serves to retain the mattress in a rolled storage condition as shown in FIG. 8. This allows each individual's personal mattress and sheet to be easily transported home for washing while the remainder of the cot and accessory items are left at the day care center, shelter, or other facility.

As may now be readily appreciated, the present invention provides an inexpensive, one piece, rotationally molded improved cot and accessory items which may be provided in a variety of ornamental colors and designs, allows for convenient transportation and storage, facilitates cleaning and sanitizing, and affords enhanced warmth and comfort to users.

It is to be understood, however, that even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and function of the invention, the disclosure is illustrative only, and changes may be made in detail, especially in matters of materials, shape, size and arrangement of parts within the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

What is claimed is:

1. A cot, comprising:

an elongated substantially hollow body possessing a closed curve construction, said hollow body rotationally molded from a plastic material;

6

said body including a substantially planar sleeping surface intersecting an inclined head rest portion;

a substantially enclosed insulating air space formed within said body beneath said sleeping surface;

a second insulating air space disposed beneath said enclosed insulating air space and adapted to separate said enclosed insulating air space from a floor supporting said cot;

a raised bottom wall at least partially defining said enclosed insulating air space;

at least one pillar extending upwardly from said raised bottom wall for supporting said sleeping surface;

said body including a top portion and a recessed bottom portion dimensioned to receive said top portion such that a plurality of identical cots may be stored in nested stacked relation;

said top and bottom portions at least partially defined by a separating peripherally extending shoulder;

at least one dolly including at least one rotatable element dimensioned for engagement with said cot to facilitate transportation and storage;

said at least one dolly dimensioned for at least partial nesting within said recessed bottom portion;

said at least one dolly including channel portions dimensioned for at least partial insertion of bottom edges of said cot and said dolly further including side walls dimensioned to at least partially overlie side wall portions of said cot;

a pad;

a cover for said pad;

cooperating fasteners on said cover and said cot for releasably securing said cover and pad to said cot;

a mattress;

cooperating fasteners on said mattress and said cot for releasably securing said mattress to said cot;

a laterally extending elastic strap on said mattress for securing said mattress in a rolled condition for transportation and storage;

a sheet; and

means for securing said sheet to said mattress.

2. A cot, comprising:

an elongated substantially hollow single piece integral body comprising a self-supporting plastic material possessing a double-wall closed curve cross-sectional construction.

3. The cot of claim 2, further comprising:

a sleeping surface; and

a substantially enclosed insulating air space formed within said body beneath said sleeping surface.

4. The cot of claim 3, further comprising a second insulating air space disposed beneath said enclosed insulating air space and adapted to separate said enclosed insulating air space from a floor supporting said cot.

5. The cot of claim 3, further comprising a raised bottom wall at least partially defining said enclosed insulating air space.

6. The cot of claim 5, further comprising at least one pillar extending upwardly from said raised bottom wall for supporting said sleeping surface.

7. The cot of claim 2, wherein said cot includes a substantially planar sleeping surface intersecting an inclined head rest portion.

8. The cot of claim 2, wherein said body includes a top portion and a recessed bottom portion dimensioned to

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7

receive said top portion in nested stacked relation within said bottom portion for storing a plurality of identical cots in nested stacked relation.

9. The cot of claim 2, wherein said cot includes top and bottom portions at least partially defined by a separating peripherally extending shoulder. 5

10. The cot of claim 2, further comprising at least one dolly including at least one rotatable element;

said body including a recessed bottom portion and said at least one dolly dimensioned for at least partial nesting within said recessed bottom portion to facilitate transportation and storage. 10

11. The cot of claim 10, wherein said dolly includes channel portions dimensioned for at least partial insertion of bottom edges of said cot. 15

12. The cot of claim 11, wherein said dolly includes side walls bounding said channel portions dimensioned to at least partially overlie side wall portions of said cot.

13. The cot of claim 2, further comprising: 20

at least one recessed zone on said body; and a fastening strip disposed within said recessed zone for releasably securing a linen accessory item to said body.

14. The cot of claim 13, wherein said linen accessory item comprises a mattress including a laterally extending elastic strap for securing said mattress in a rolled condition for transportation and storage. 25

15. A cot, comprising:

an elongated, substantially rectangular, single piece integral body comprising a self-supporting plastic material; said body including a bottom portion having lower side wall portions with bottom edges adapted for abutment with a room floor, said lower side wall portions slightly inclined upwardly and inwardly from said bottom edges; 30

said body including a top portion having upper side wall portions, said lower side wall portions intersecting said upper side wall portions at a shoulder extending at least partially around a perimeter of said body; 40

said upper side wall portions substantially surrounding a substantially rectangular sleeping surface recessed below top edges of said upper sidewall portions; 45

said bottom portion having a substantially hollow interior, and said top portion dimensioned for receipt within said hollow interior of said bottom portion for storing a plurality of identical cots in nested stacked relation such that the bottom edges of said lower side wall portions of each stacked cot rest at least partially upon said shoulder of the cot below; and 50

said sleeping surface disposed above said shoulder in said top portion of said body such that said hollow interior of said bottom portion forms, upon abutment with a room floor, a substantially enclosed insulating air space beneath said sleeping surface. 55

16. A cot, comprising:

an elongated body comprising a self-supporting material; said body including a bottom portion having lower side wall portions with bottom edges adapted for abutment with a room floor; 60

said body including a top portion having upper side wall portions, said lower side wall portions intersecting said 65

8

upper side wall portions at a shoulder extending at least partially around a perimeter of said body;

said upper side wall portions substantially surrounding a sleeping surface recessed below top edges of said upper sidewall portions;

said bottom portion having a substantially hollow interior, and said top portion dimensioned for receipt within said hollow interior of said bottom portion for storing a plurality of identical cots in nested stacked relation; and said hollow interior of said bottom portion forming, upon abutment with a room floor, a substantially enclosed insulating air space beneath said sleeping surface.

17. A cot, comprising:

an elongated substantially hollow single piece integral body comprising a self-supporting plastic material having a double-wall closed curve cross-sectional construction;

said body including a bottom portion having lower side wall portions with bottom edges adapted for abutment with a room floor;

said body including a top portion having upper side wall portions, said lower side wall portions intersecting said upper side wall portions at a shoulder extending at least partially around a perimeter of said body;

said upper side wall portions substantially surrounding a sleeping surface;

said bottom portion having a substantially hollow interior, and said top portion dimensioned for receipt within said hollow interior of said bottom portion for storing a plurality of identical cots in nested stacked relation; and said hollow interior of said bottom portion forming, upon abutment with a room floor, a substantially enclosed insulating air space beneath said sleeping surface.

18. A cot, comprising:

an elongated body comprising a self-supporting material; said body including a bottom portion having lower side wall portions with bottom edges adapted for abutment with a room floor;

said body including a top portion having upper side wall portions, said lower side wall portions intersecting said upper side wall portions at a shoulder extending at least partially around a perimeter of said body;

said upper side wall portions substantially surrounding a sleeping surface;

said bottom portion having a substantially hollow interior, and said top portion dimensioned for receipt within said hollow interior of said bottom portion for storing a plurality of identical cots in nested stacked relation such that the bottom edges of said lower side wall portions of each stacked cot rest at least partially upon said shoulder of the cot below.

19. The cot of claim 18, further comprising at least one pair of aligned hand grips disposed on opposed sides of said body.

20. A cot, comprising:

an elongated substantially hollow single piece integral body comprising a self-supporting plastic material having a closed curve cross-sectional construction;

SA126

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9

said body including a bottom portion having lower side wall portions with bottom edges adapted for abutment with a room floor;

said body including a top portion having upper side wall portions, said lower side wall portions intersecting said upper side wall portions at a shoulder extending at least partially around a perimeter of said body;

said upper side wall portions substantially surrounding a sleeping surface;

10

said bottom portion having a substantially hollow interior, and said top portion dimensioned for receipt within said hollow interior of said bottom portion for storing a plurality of identical cots in nested stacked relation such that the bottom edges of said lower side wall portions of each stacked cot rest at least partially upon said shoulder of the cot below.

* * * * *

United States Patent [19]

Karl et al.

[11] Patent Number: **5,857,742**

[45] Date of Patent: ***Jan. 12, 1999**

[54] **MOLDING CHAIR**

[75] Inventors: **Richard B. Karl**, St. Charles; **Harvey Hanig**, North Aurora, both of Ill.

[73] Assignee: **NORIX Group, Inc.**, West Chicago, Ill.

[*] Notice: The term of this patent shall not extend beyond the expiration date of Pat. No. 5,496,091.

[21] Appl. No.: **583,498**

[22] Filed: **Jan. 5, 1996**

| | | | |
|-----------|---------|-------------------|--------------|
| 2,481,935 | 9/1949 | Larson | 297/244 X |
| 3,556,586 | 1/1971 | Beardmore | 297/DIG. 2 X |
| 3,584,916 | 6/1971 | Bayes | 297/249 X |
| 3,774,962 | 11/1973 | Watamura et al. | 27/249 |
| 3,841,701 | 10/1974 | Sullivan | 297/248 |
| 3,899,210 | 8/1975 | Samhammer et al. | 297/452.17 X |
| 4,213,213 | 7/1980 | Burnett | 297/452.17 X |
| 4,662,679 | 5/1987 | Franck et al. | 297/240 |
| 4,929,021 | 5/1990 | Kaye | 297/188.09 |
| 4,988,090 | 1/1991 | Schmitt | 472/116 |
| 5,352,017 | 10/1994 | Berning | 297/248 |
| 5,456,518 | 10/1995 | Kemppainen et al. | 297/240 |

Related U.S. Application Data

[63] Continuation of Ser. No. 213,161, Mar. 14, 1994, Pat. No. 5,496,091.

[51] Int. Cl.⁶ **A47C 15/00**

[52] U.S. Cl. **297/248; 297/244; 297/DIG. 2; 297/188.13; 297/452.65**

[58] Field of Search 297/240, 232, 297/248, 249, 243, 244, 257, 188.01, 188.08, 188.09, 188.13, 440.14, 452.17, 452.65, 452.1, DIG. 2, 452.14, 440.1, 233, 440.12; 248/501

[56] References Cited

U.S. PATENT DOCUMENTS

123,131 1/1872 Taylor 297/249

FOREIGN PATENT DOCUMENTS

| | | | |
|---------|--------|---------|------------|
| 2021716 | 1/1972 | Germany | 297/DIG. 2 |
| 2846750 | 4/1980 | Germany | 297/440.1 |

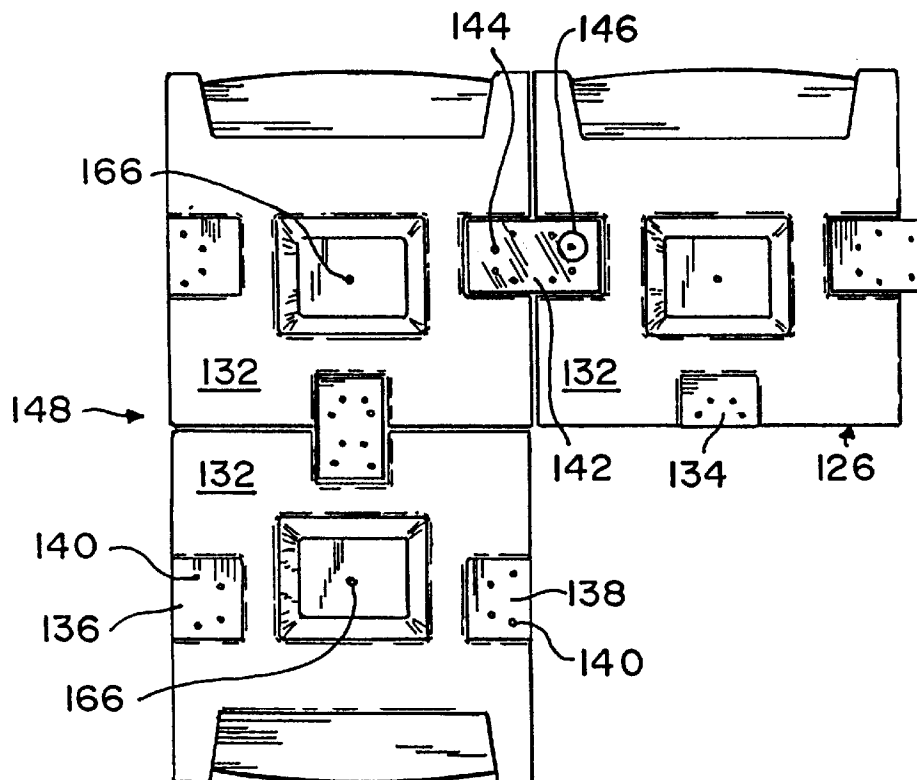
Primary Examiner—Milton Nelson, Jr.

Attorney, Agent, or Firm—Mathew R. P. Perrone, Jr.

[57] ABSTRACT

A hollow chair may hold an amount of weight due to a flowable material contained therein and may be joined to on or more chairs.

39 Claims, 5 Drawing Sheets

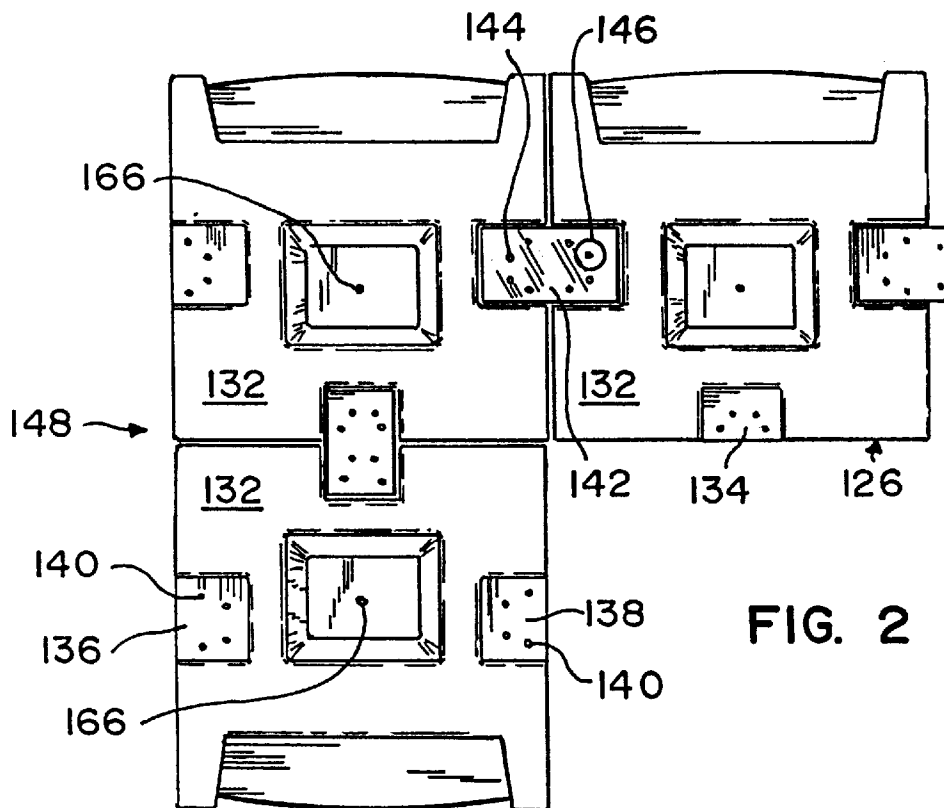
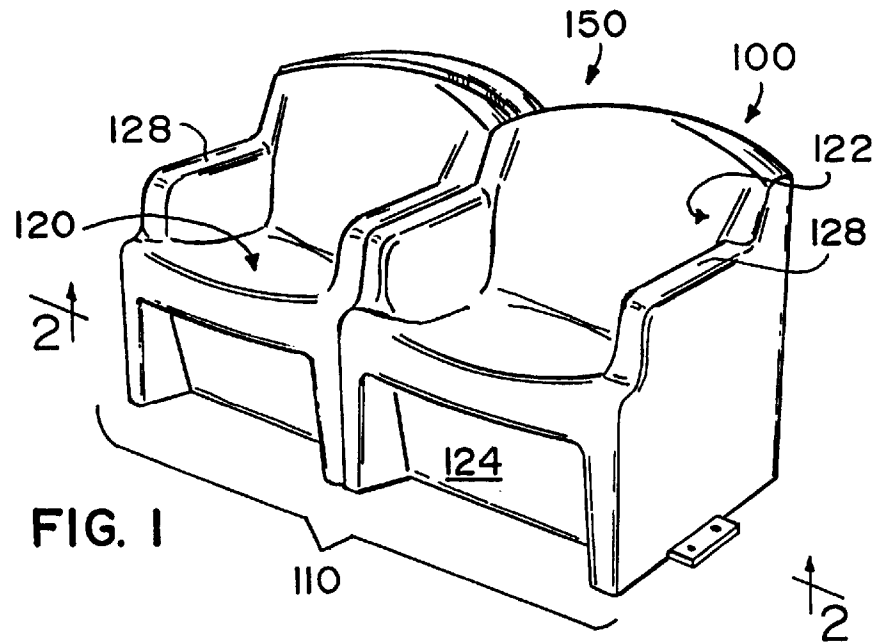


U.S. Patent

Jan. 12, 1999

Sheet 1 of 5

5,857,742



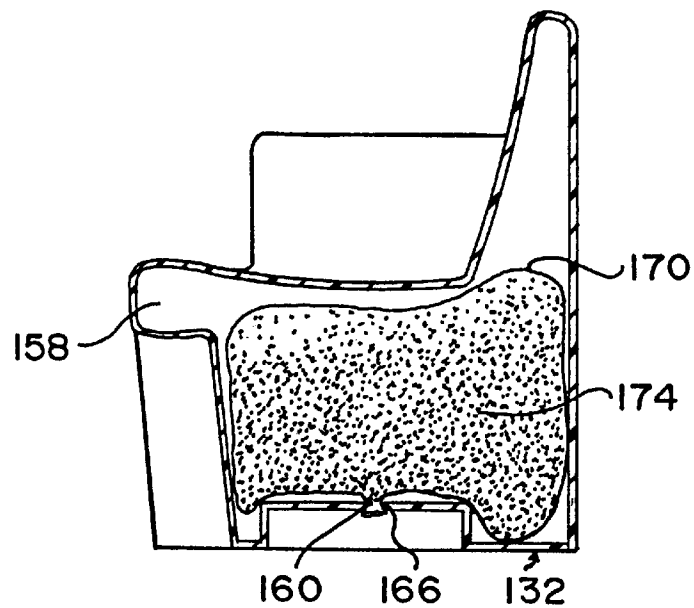
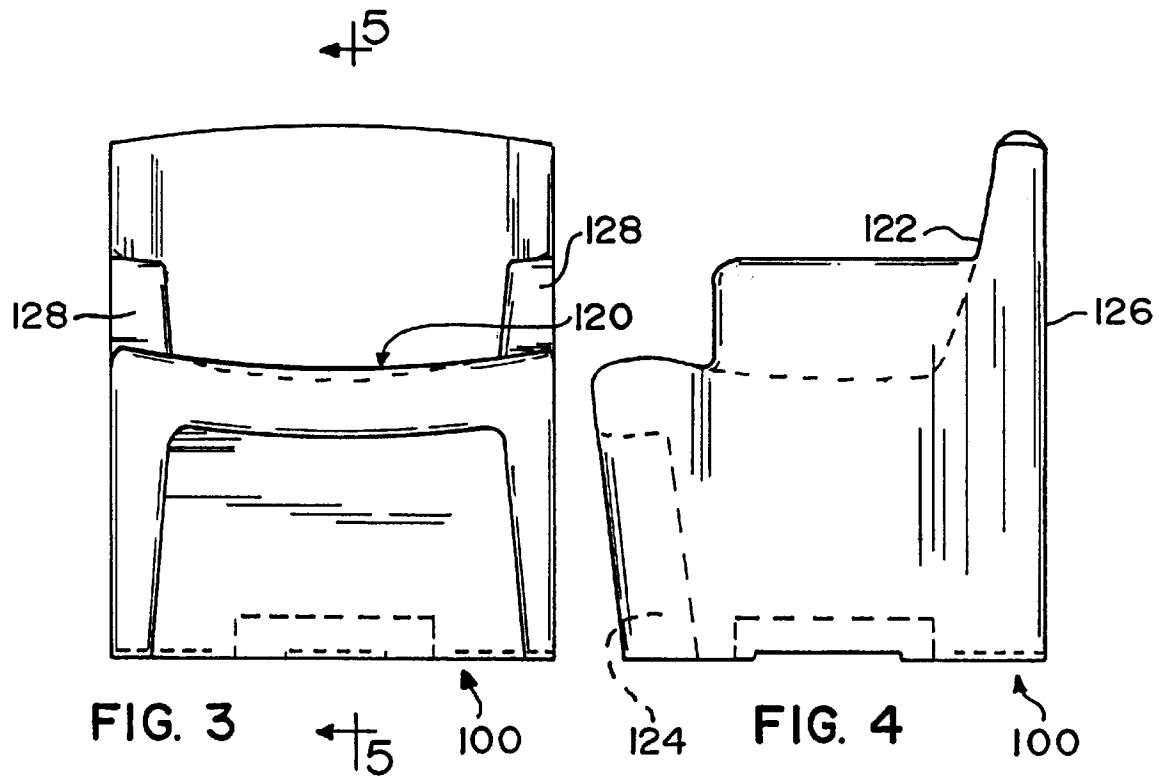


FIG. 5

U.S. Patent

Jan. 12, 1999

Sheet 3 of 5

5,857,742

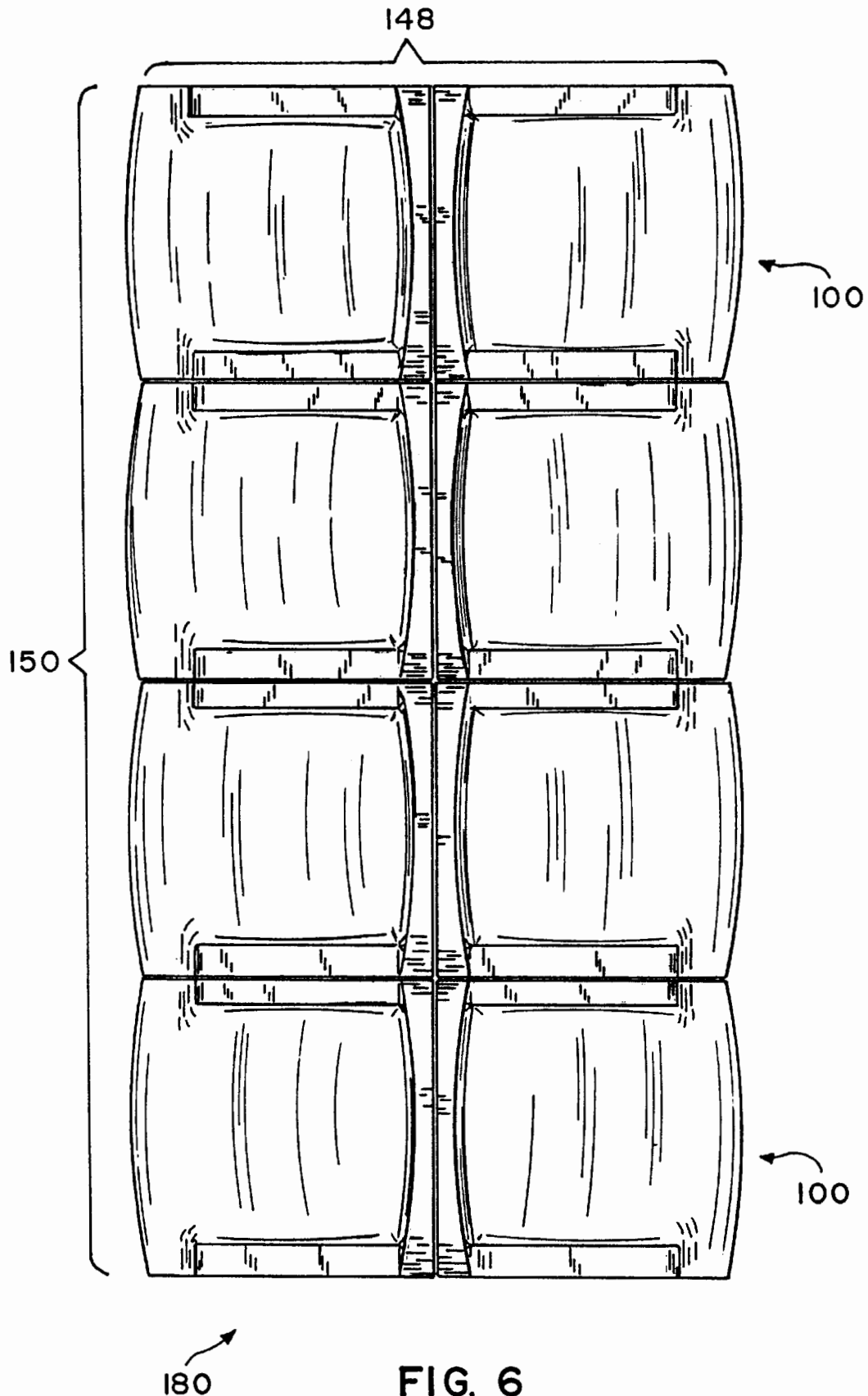


FIG. 6

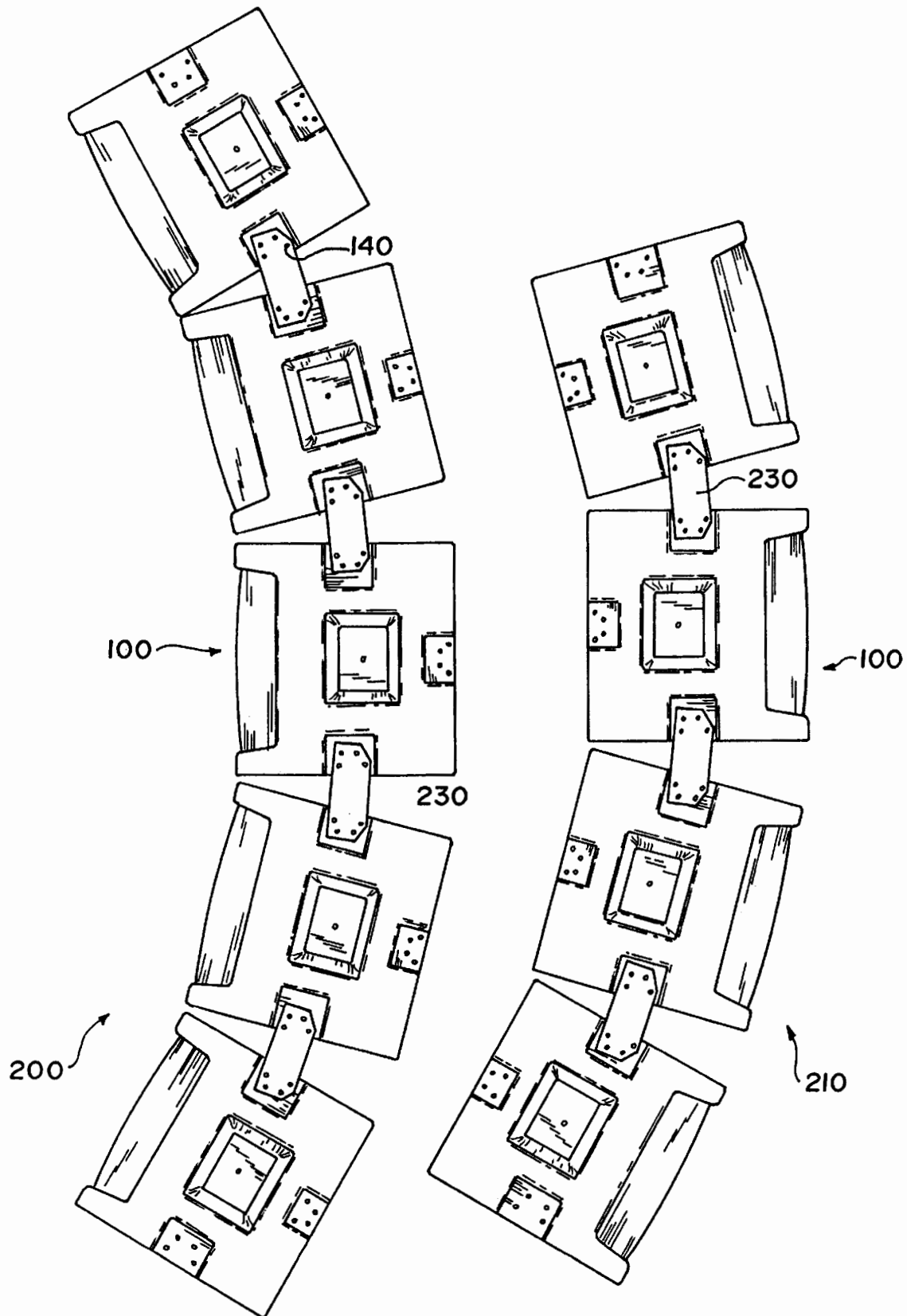
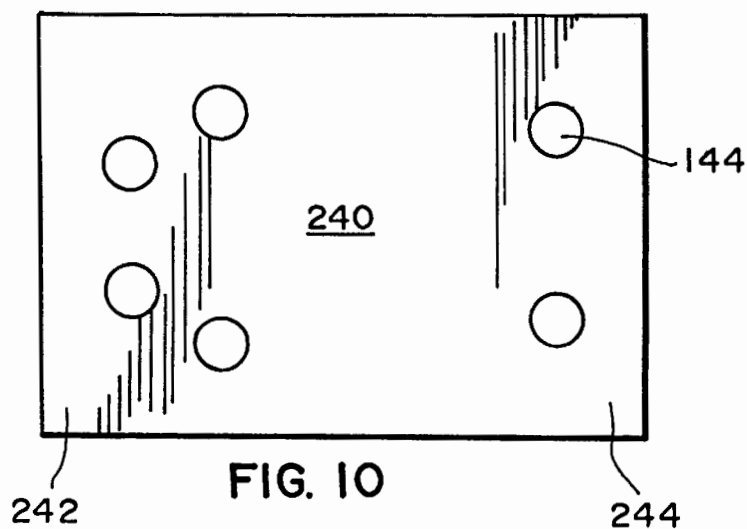
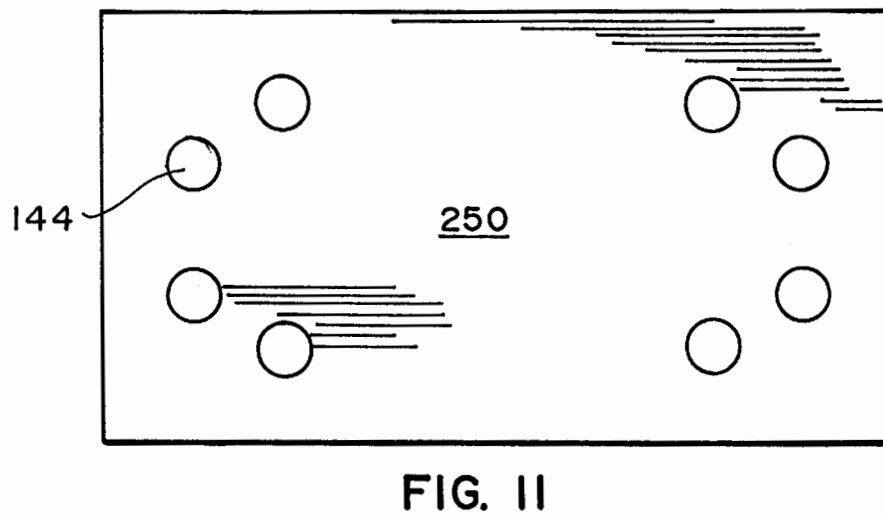
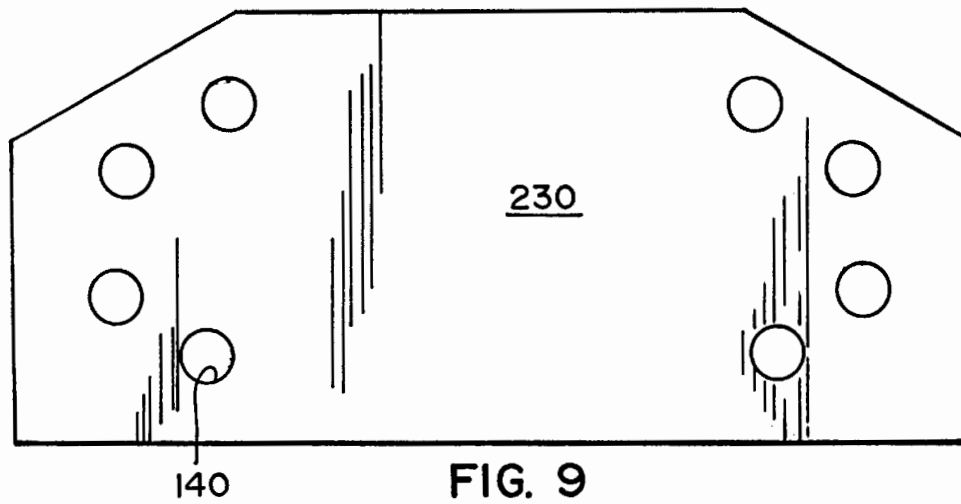


FIG. 7

FIG. 8



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1

MOLDING CHAIR**CROSS-REFERENCE TO RELATED APPLICATION**

This application is a continuation of U.S. patent application 08/213,161, filed Mar. 14, 1994, now U.S. Pat. No. 5,496,091.

This invention relates to a chair and more particularly to a chair or grouping thereof, especially suitable for use in an incarceration facility.

BACKGROUND OF THE INVENTION

It is desirable that furniture have durability. It is also desirable that furniture be suited for the purpose desired as well as aesthetically pleasing. An especially difficult situation is to develop furniture suitable for use in incarceration facilities or correctional facilities.

Other locations requiring a durable, aesthetically pleasing chair are clear. Any location having a heavy concentration of people requires a durable, aesthetically pleasing chair. Other such locations are typified by a college lounge, a hospital, and an airport lounge. So it is clear for the purposes herein that a reference to an correctional facility can include other sites.

Furniture for incarceration facilities or correctional facilities has special requirements. This location almost definitely precludes the use of foam or upholstery to achieve the comfort. Among other reasons to avoid use upholstery or foam, a main reason. Among the other defined reasons to avoid use of upholstery or foam in prison furniture, an additional reason is to provide an easily cleaned piece of furniture.

Durability and suitability as well as comfort, aesthetical and ergonomical utility are required. It is difficult to achieve proper aesthetics and ergonomics or comfort, when the primary goal is durability and suitability.

Furthermore, it is desired that furniture used in a correctional facility permit no improper use of that furniture, by anyone incarcerated therein. For example, any furniture must lack a place of concealment. Typically, an inmate will try to conceal a drug, a weapon or other contraband in furniture. An inmate may also try to make a weapon from a part of the furniture. The structure of the furniture must avoid all of these problems.

Additionally, mobility or ease of correctional facility furniture movement is required. This mobility, however, must be combined with the ability to fix the piece of furniture in place. It is best desired to have incarceration furniture mobile, but capable of being made immobile in a relatively simple fashion.

Clearly, furniture used in incarceration facilities must be durable with a long life cycle, in order to survive the heavy use received therein. It must also be easily cleaned.

If the durability, can be combined with aesthetically pleasing characteristics, certain psychological advantages can be obtained. For one, the aesthetic pleasure with corresponding comfort can reduce the mental strain on both the prisoners and the staff. This factor can inherently result in a safer environment.

These factors are especially required for a chair to be used in a correctional facility. Another factor useful for a correctional facility chair is the ability of the chair to be joined to another chair. If this can be accomplished, the chair can serve a number of different functions.

It is also especially useful, if the chair can be made difficult to lift or move. Also a removable part of the

2

furniture must be avoided. Such limitations keep the chair or a part thereof from becoming a weapon in the event of a riot or other undesired occurrence.

Other requirements of incarceration facility furniture include difficulty in a making a weapon from.

Thus, it may be seen that there are a number of conflicting design requirements when incarceration facility furniture is considered. To maximize the advantages of these conflicting requirements can create a major problem.

SUMMARY OF THE INVENTION

Among the many objectives of this invention is the provision of a chair which can be rotationally molded to have a proper shape for comfort and aesthetics, while being durable and mobile when desired.

Another objective of this invention is to provide a chair, which is easily attached to another chair of the same type.

Yet another objective of this invention is to provide a chair, which can be weighted.

Still another objective of this invention is to provide a chair, which is suitable for use in a correctional facility.

Additionally, an objective of this invention is to provide a chair, which is durable.

Also, an objective of this invention is to provide a chair, which is aesthetically pleasing.

A further objective of this invention is to provide a chair, which is easily installed.

A still further objective of this invention is to provide a chair, which can easily have substantial weight added thereto.

Yet a further objective of this invention is to provide a chair, which is easily moved.

Another objective of this invention is to provide a chair, which is easily attached or secured in position.

Yet another objective of this invention is to provide a chair, which is difficult to use as a weapon.

Still another objective of this invention is to provide a chair, which lacks a place of concealment.

Additionally, an objective of this invention is to provide a chair, which is tamperproof.

Also, an objective of this invention is to provide a chair, which is fire retardant.

A further objective of this invention is to provide a method for attaching a chair to another chair of the same type.

A still further objective of this invention is to provide a method for adding weight to a chair.

Yet a further objective of this invention is to provide a chair, which is easily cleaned.

Another objective of this invention is to provide a chair, which is comfortable even in the absence of foam.

Yet another objective of this invention is to provide a chair, which is comfortable even in the absence of upholstery.

These and other objectives of the invention (which other objectives become clear by consideration of the specification, claims and drawings as a whole) are met by providing a chair which is hollow and capable of holding a amount of weight on the interior thereof and being joined to a second chair.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 depicts a front top, perspective view of two of the correctional facility chairs 100 of this invention.

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5,857,742

3

FIG. 2 depicts a bottom, plan view of two correctional facility chairs **100** of this invention.

FIG. 3 depicts a front, plan view of the correctional facility chairs **100** of this invention.

FIG. 4 depicts a side view of the correctional facility chair **100** of this invention.

FIG. 5 depicts a side view of the correctional facility chair **100** of this invention, in partial cross-section.

FIG. 6 depicts a top, plan view of eight correctional facility chairs **100** of this invention.

FIG. 7 depicts a bottom, plan view of five correctional facility chairs **100** of this invention showing an interior arc **200**.

FIG. 8 depicts a bottom, plan view of four correctional facility chairs **100** of this invention showing an exterior arc **210**.

FIG. 9 depicts a top, plan view of arc plate **230**.

FIG. 10 depicts a top, plan view of floor plate **240**.

FIG. 11 depicts a top, plan view of combination plate **250**.

Throughout the figures of the drawings where the same part appears in more than one figure the same number is applied thereto.

DESCRIPTION OF PREFERRED EMBODIMENTS

The chair of this invention is a shaped one piece chair. Formation of the chair is accomplished by any suitable, but preferably by a rotational molding process. This chair may be joined to another chair or chairs of the same type in order to form a desired grouping.

It has an ergonomically shaped seat and back along with appropriate indentations to permit simplified molding while providing a chair, which is strong, durable and comfortable. The chair has a back support and seating mechanism combined with straight arms.

In the base of the chair are three edge indentations, one each being on the rear and two side portions. Within these edge indentations are threaded members to provide for attachment of plates, which can secure one chair to another as many times as desired.

Centrally located in the base of the chair is a plug, the removal of which provides access to the interior of the chair. The base location is critical in order to restrict access to plug for storage of common prison contraband.

Into that plug may be inserted a bag. The bag may have sand, or a similar material inserted therein. The bag may then be sealed and the plug closed. This sand or similar heavy material can provide weight to the chairs and make the chair difficult, if not impossible, to move. In this fashion, the desired results can be obtained for a chair or group thereof suitable for use in an incarceration facility.

The chairs are heavy duty and durable. Also, the chairs are not easily damaged. The chairs may be formed by rotational molding in a relatively simple fashion. By such molding, the chairs are then formed as hollow chairs.

The formation of an aperture in the base of the chair. Such access permits a bag to be inserted into the chair's interior. The bag, while optional, adds to neatness desired for the system.

Whether there is a bag in the interior or not, a flowable material capable of providing great weight when contained may be added to the chair. Typical of the flowable material is sand or other weight material. It is also feasible to insert the sand or other weight material directly into the chairs.

4

However, the bag is preferred especially for the sand with the idea being neatness and more efficient insertion of the sand.

Referring now to FIG. 1, a chair **100** of this invention is shown as double grouping **110**. Chair **100** is a shaped, one-piece chair. Formation of the chair **100** to create the desired hollow aspect is best accomplished by a rotational molding process. This chair **100** may be joined to another chair **100** or chairs of the same type in order to form a desired grouping.

Adding FIG. 2 to the consideration, in the base **132** thereof are three edge indentations, one being a rear indentation **134** adjacent the back **126**, and a first side indentation **136** adjacent one arm rest **128** with a second side indentation **138** adjacent the other arm rest **128**. Within these edge indentations are mounted female threaded members **140** to provide for attachment of straight plate **142**.

The three edge indentations, the rear indentation **134**, the first side indentation **136** and the second side indentation **138** are all generally rectangular in shape. Each receives straight plate **142** in a relatively tight, slidable fit.

Straight plate **142** includes a plate aperture **144** for each female threaded member **140**, which lines up appropriately due to the tight fit. Each plate aperture **144** can receive a bolt **146**, which can secure one chair **100** to another as many times as desired. Both a back to back structure **148** and a side to side structure **150** is shown.

With the additional consideration of FIG. 3, and FIG. 4 chair **100** includes an ergonomically shaped seat **120** and an ergonomically shaped back **122** along with appropriate front indentations **124** and to permit simplified molding while providing a chair **100**, which is strong, durable and comfortable. The chair **100** has a back **126**, combined with a pair of oppositely-disposed arm rests **128**, each being perpendicular to opposing edges of the back **122** and seat **120**.

The concept of adding weight to the chair **100** is shown in FIG. 5. Centrally located in the base **132** of the chair **100** for providing access to the interior **158** of chair **100** is a plug **160**. Plug **160** serves as a closure member for base aperture **166** in the base **132** of chair **100**.

Into that base aperture **166** may be inserted a bag **170**. The bag **170** may have sand **174**, or a similar material inserted therein. The bag **170** may then be sealed and the plug **160** used to close base aperture **166**. This sand **174** or similar heavy material can provide weight to the chairs **100** and make the chair **100** difficult, if not impossible, to move. In this fashion, the desired results can be obtained for a chair **100** or group thereof suitable for use in an incarceration facility.

The formation of the aperture **166** in the base **132** of the chair **100** permits access to the interior **158** of chair **100**. Such access permits the bag **170** to be inserted into the interior **158** of chair **100** if it is so desired. The bag **170**, while optional, adds to the neatness desired for the system using chair **100**. Thus, chair **100** or group thereof can be made heavy at the desired site of use in this manner.

Whether there is a bag **170** in the interior or not, a flowable material capable of providing great weight when contained may be added to the chair **100**. Typical of the flowable material is sand or other weighty material. It is also feasible to insert the sand or other weighty material directly into the chairs **100**. However, the bag **170** is preferred especially with sand with the idea being neatness and more efficient insertion of the sand.

Clearly, with the consideration of FIG. 6, as many of chair **100** as desired may be placed and joined in side to side

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5,857,742

5

structure **150**. Back to back structure **148** is clearly limited to two chairs **100**. The eight group **180** shown herein is illustrative only. Side to side structure **150** and back to back structure **148** may be used jointly or severally.

As shown in FIG. 7, an interior arc **200** can be formed from the correctional facility chair **100**. By interior arc **200** is meant that the seat **120** of the chair **100** faces inwardly. Arc plate **230** of FIG. 9 is adjusted in shape to fit first side indentation **136** and second side indentation **138** slidably and movably as opposed to the snug fit of straight plate **142** therein.

Plate apertures **140** are sufficient to provide the interior arc **200** as desired. In fact plate apertures **140**, may be provided in sufficient number to provide for a variety of different angles for interior arc **200**. Arc plate **230** is movable within first side indentation **136** and second side indentation **138** and rear indentation **134** due to the size of arc plate **230**.

The exterior arc **210** of FIG. 8 is formed by merely having arc plate **230** turned over with a different flat side down. The variations of exterior arc **210** are similar to interior arc **200**. By exterior arc **210** is meant that the seat **120** of the chair **100** faces outwardly.

In FIG. 9, arc plate **230** is shown as having a series of plate apertures **144** for each female threaded member **140**. Each plate aperture **144** in arc plate **230** can align with and be connected to a female threaded member **140**. By appropriate selection of a plate aperture **144** in arc plate **230**, interior arc **200** can be adjusted with respect to both the angle and the shape, thereof.

By turning over arc plate **230**, exterior arc **210** can be achieved in the same fashion and with similar adjustments as interior arc **200**. Optionally additional plate apertures **144** can be applied to avoid turning arc plate **230** over. Apertures **144** must not however weaken the arc plate **230**. The appropriate strength of arc plate **230** can be empirically determined.

Floor plate **240** of FIG. 10 is shorter in length than either straight plate **142** or arc plate **230**. Floor plate **240** has a chair portion **242**, which fits under chair **100**, and an extension portion **244**, which extends outwardly from the chair **100** as shown in FIG. 1. Floor plate **240** includes plate apertures **144** in extension portion **244** securing the chair **100** to the floor.

FIG. 11 depicts combination plate **250** as having sufficient apertures **144** to be substituted for any one of floor plate **240**, arc plate **230** or straight plate **142**. The apertures **144** and the plate shape are the clear reasons for this versatility.

This application—taken as a whole with the claims, specification, abstract, and drawings—provides sufficient information for a person having ordinary skill in the art to practice the invention disclosed and claimed herein. Any measures necessary to practice this invention are well within the skill of a person having ordinary skill in this art after that person has made a careful study of this disclosure.

Because of this disclosure and solely because of this disclosure, modification of this method and apparatus can become clear to a person having ordinary skill in this particular art. Such modifications are clearly covered by this disclosure.

What is claimed and sought to be protected by Letters Patent of the United States is:

1. A shaped, one-piece chair comprising:

- a) a chair form having a pair of oppositely disposed arms; a chair seat therebetween and a chair back support ergonomically related to the chair seat;

6

- b) a joining means being adapted to secure the one-piece chair to a desired position;
 - c) a means for adding weight to the one-piece chair;
 - d) a base below the chair seat;
 - e) the joining means being situated in the base;
 - f) the means for adding weight being situated in the base;
 - g) the pair of oppositely disposed arms including a first arm and a second arm;
 - h) the joining means including a set of indentations;
 - i) the set of indentations including a first indentation, a second indentation and a third indentation;
 - j) the first indentation being near the first arm;
 - k) the second indentation being near the second arm;
 - l) the third indentation being near the chair back support;
 - m) the first indentation, the second indentation, and the third indentation each having at least one threaded member secured therein; and
 - n) the first indentation, the second indentation, and the third indentation each being adapted to receive a plate.
2. The shaped, one-piece chair of claim 1 comprising:
- a) the first indentation, the second indentation, and the third indentation each having at least three threaded members secured therein;
 - b) the plate being at least one plate selected from the group consisting of a movable plate, a half plate and a straight plate; and
 - c) the straight plate including at least one aperture capable of aligning with one of the at least three threaded members.
3. The shaped, one-piece chair of claim 1 comprising:
- a) the first indentation, the second indentation, and the third indentation each having at least three threaded members secured therein;
 - b) the plate being a straight plate;
 - c) the straight plate being of sufficient size to fit tightly in one member of the set of indentations;
 - d) the straight plate being of sufficient size to extend beyond the one member of the set of indentations; and
 - e) the straight plate including at least one aperture capable of aligning with one of the at least three threaded members.
4. The shaped, one-piece chair of claim 1 comprising:
- a) the first indentation, the second indentation, and the third indentation each having at least three threaded members secured therein;
 - b) the plate being a half plate;
 - c) the half plate being of sufficient size to fit in one member of the set of indentations;
 - d) the half plate being of sufficient size to extend beyond the one member of the set of indentations;
 - e) the half plate including at least one aperture capable of aligning with one of the at least three threaded members; and
 - e) the half plate including at least one aperture extending beyond the one member of the set of indentations adapted to be used for securing the plate and the shaped, one-piece chair to a floor.
5. The shaped, one-piece chair of claim 1 comprising:
- a) the first indentation, the second indentation, and the third indentation each having at least three threaded members secured therein;
 - b) the plate being a movable plate; and

SA136

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5,857,742

7

- c) the movable plate including at least one aperture capable of aligning with one of the at least three threaded members.
- 6.** The shaped, one-piece chair of claim **5** comprising:
- a) the movable plate being of sufficient size to fit movably in one member of the set of indentations until secured therein; and
- b) the movable plate being of sufficient size to extend beyond the one member of the set of indentations.
- 7.** The shaped, one-piece chair of claim **1** comprising:
- a) the means for adding weight including a closable aperture situated in the base;
- b) the closable aperture being adapted to receive a flowable, weight-adding material in order to render the shaped, one-piece chair substantially immobile; and
- c) a closing means for the closable aperture.
- 8.** The shaped, one-piece chair of claim **7** comprising:
- a) a bag being situated within the shaped, one-piece chair;
- b) the closable aperture receiving the bag therethrough;
- c) the flowable, weight-adding material being within the bag within the shaped, one-piece chair; and
- d) the flowable, weight-adding material being sand.
- 9.** A shaped, one-piece chair comprising:
- a) a chair form having a pair of oppositely disposed arms, a chair seat therebetween, a leg structure supporting the chair seat and a chair back support ergonomically related to the chair seat;
- b) a joining mechanism for securing the one-piece chair to a desired position;
- c) a weight adding mechanism for the one-piece chair for increasing the weight of the one-piece chair and making the one-piece chair difficult to move;
- d) the chair form having a bottom for the chair form;
- e) the weight adding mechanism being adapted to receive ballast for the chair form;
- f) the chair form including a hollow interior as part of the weight adding mechanism;
- g) the weight adding mechanism providing access to the hollow interior of the shaped, one-piece chair;
- h) the hollow interior being adapted to receive a flowable, weight-adding material to render the shaped, one-piece chair substantially immobile;
- i) the bottom being below the chair seat;
- j) the joining mechanism being situated in the bottom; and
- k) the weight adding mechanism being situated in the bottom.
- 10.** The shaped, one-piece chair of claim **9** comprising: the weight adding mechanism including the hollow interior.
- 11.** The shaped, one-piece chair of claim **9** comprising:
- a) the pair of oppositely disposed arms including a first arm and a second arm;
- b) the joining mechanism including a set of indentations;
- c) the set of indentations including a first indentation, a second indentation and a third indentation;
- d) the first indentation being near the first arm;
- e) the second indentation being near the second arm;
- f) the third indentation being near the chair back support;
- g) the first indentation, the second indentation, and the third indentation each having at least one threaded member secured therein; and
- h) the first indentation, the second indentation, and the third indentation each being adapted to receive a plate.

8

- 12.** The shaped, one-piece chair of claim **11** comprising:
- a) the first indentation, the second indentation, and the third indentation each having at least three threaded members secured therein;
- b) the plate being at least one plate selected from the group consisting of a movable plate, a half plate, and a straight plate; and
- c) the straight plate including at least one aperture capable of aligning with one of the at least three threaded members.
- 13.** The shaped, one-piece chair of claim **11** comprising:
- a) the first indentation, the second indentation, and the third indentation each having at least three threaded members secured therein;
- b) the plate being a straight plate;
- c) the straight plate being of sufficient size to fit tightly in one member of the set of indentations;
- d) the straight plate being of sufficient size to extend beyond the one member of the set of indentations; and
- e) the straight plate including at least one aperture capable of aligning with one of the at least three threaded members.
- 14.** The shaped, one-piece chair of claim **11** comprising:
- a) the first indentation, the second indentation, and the third indentation each having at least three threaded members secured therein;
- b) the plate being a half plate;
- c) the half plate being of sufficient size to fit in one member of the set of indentations;
- d) the half plate being of sufficient size to extend beyond the one member of the set of indentations;
- e) the half plate including at least one aperture capable of aligning with one of the at least three threaded members; and
- f) the half plate including at least one aperture extending beyond the one member of the set of indentations adapted to be used for securing the plate and the shaped, one-piece chair to a floor.
- 15.** The shaped, one-piece chair of claim **11** comprising:
- a) the first indentation, the second indentation, and the third indentation each having at least three threaded members secured therein;
- b) the plate being a movable plate; and
- c) the movable plate including at least one aperture capable of aligning with one of the at least three threaded members.
- 16.** The shaped, one-piece chair of claim **15** comprising:
- a) the movable plate being of sufficient size to fit movably in one member of the set of indentations until secured therein; and
- b) the movable plate being of sufficient size to extend beyond the one member of the set of indentations.
- 17.** A shaped, one-piece chair comprising:
- a) a chair form having a pair of oppositely disposed arms, a chair seat therebetween, a leg structure supporting the chair seat and a chair back support ergonomically related to the chair seat;
- b) a joining mechanism for securing the chair form to a desired position;
- c) the pair of oppositely disposed arms including a first arm and a second arm;
- d) the joining mechanism including a set of indentations;
- e) the set of indentations including a first indentation and a second indentation;

SA137

A87

5,857,742

9

- f) the first indentation being adjacent to the first arm;
- g) the second indentation being adjacent to the second arm; and
- h) the first indentation and the second indentation each being adapted to receive a plate.

18. The shaped, one-piece chair of claim 17 further comprising the joining mechanism being adapted for securing the chair form together with a second chair form in a side by side fashion.

19. The shaped, one-piece chair of claim 17 further comprising the joining mechanism being adapted for securing the chair form together with a second chair form in a back to back fashion.

20. The shaped, one-piece chair of claim 17 further comprising the joining mechanism being adapted for securing the chair form together with a second chair form in a side by side fashion and with a third chair form in a back to back fashion.

21. The shaped, one-piece chair of claim 17 comprising:

- a) the chair form including a hollow interior as part of a weight adding mechanism;
- b) the weight adding mechanism providing access to the hollow interior of the shaped, one-piece chair;
- c) the hollow interior being adapted to receive a flowable, weight-adding material to render the shaped, one-piece chair substantially immobile;
- d) a bottom of the chair form being below the chair seat;
- e) the joining mechanism being situated in the bottom; and
- f) the weight adding mechanism being situated in the bottom.

22. A shaped, one-piece chair comprising:

- a) a chair form having a chair seat, a leg structure supporting the chair seat and a chair back support ergonomically related to the chair seat;
- b) a joining mechanism being adapted to secure the one-piece chair to a desired position;
- c) a weight adding mechanism for the one-piece chair for increasing the weight of the one-piece chair and making the one-piece chair difficult to move;
- d) the chair form having a bottom for the chair form;
- e) the weight adding mechanism being adapted to receive ballast for the chair form;
- f) the chair form including a hollow interior as part of the weight adding mechanism;
- g) the weight adding mechanism providing access to the hollow interior of the shaped, one-piece chair;
- h) the hollow interior receiving a flowable, weight-adding material to render the shaped, one-piece chair substantially immobile;
- i) the bottom being below the chair seat;
- j) the joining mechanism being situated in the bottom; and
- k) the weight adding mechanism being situated in the bottom.

23. The shaped, one-piece chair of claim 22 comprising:

- a) the joining mechanism including a set of indentations in the bottom of the chair;
- b) the set of indentations including a first indentation, a second indentation and a third indentation;
- c) the first indentation being oppositely disposed from the second indentation;
- d) the third indentation being near the chair back support and between the first indentation and the second indentation;

10

- e) the first indentation, the second indentation, and the third indentation each having at least one threaded member secured therein; and
- h) the first indentation, the second indentation, and the third indentation each being adapted to receive a plate.

24. The shaped, one-piece chair of claim 23 further comprising the joining mechanism being adapted for securing the chair form together with a second chair form in a side by side fashion.

25. The shaped, one-piece chair of claim 23 further comprising the joining mechanism being adapted for securing the chair form together with a second chair form in a back to back fashion.

26. The shaped, one-piece chair of claim 23 further comprising the joining mechanism being adapted for securing the chair form together with a second chair form in a side by side fashion and with a third chair form in a back to back fashion.

27. A shaped chair comprising:

- a) a chair form having a chair seat therebetween and a chair back support ergonomically related to the chair seat;
- b) the chair form including a means for securing a first chair of the shaped chair to a second chair of the shaped chair;
- c) the chair form including a means for adding weight to the shaped chair;
- d) the chair form including a means for retaining weight in the shaped chair;
- e) the means for securing the first chair of the shaped chair to the second chair of the shaped chair being situated below the seat;
- f) the means for securing the first chair of the shaped chair to the second chair including a set of indentations in the shaped chair;
- g) the shaped chair having a pair of oppositely disposed arms;
- h) the pair of oppositely disposed arms including a first arm and a second arm;
- i) the shaped chair including a base below the chair seat;
- j) the base of the shaped chair including the means for securing the first chair of the shaped chair to the second chair of the shaped chair; and
- k) the base of the shaped chair including the means for adding weight to the shaped chair.

28. The shaped chair of claim 27 comprising: the base of the shaped chair including the means for retaining weight in the shaped chair.

29. The shaped chair of claim 27 comprising:

- a) at least one said indentation having at least one threaded member secured therein;
- b) the means for securing including at least one plate;
- b) the at least one plate being selected from a straight plate, a movable plate and a half plate; and
- c) the at least one plate including at least one aperture capable of aligning with the at least one threaded member.

30. The shaped chair of claim 27 comprising:

- a) the straight plate being of sufficient size to fit tightly in the at least one indentation; and
- b) the straight plate being of sufficient size to extend beyond the at least one indentation.

31. The shaped chair of claim 30 comprising:

- a) the movable plate being movable relative to the at least one indentation; and

SA138

A88

5,857,742

11

b) the movable plate including at least one aperture capable of aligning with the at least one threaded member.

32. The shaped chair of claim **31** comprising:

- a) the plate being a half plate; 5
- b) the half plate being of sufficient size to fit into the at least one indentation;
- c) the half plate being of sufficient size to extend beyond the at least one indentation; 10
- d) the half plate including at least one aperture capable of aligning with the at least one threaded member; and
- e) the half plate including at least one aperture extending beyond the at least one indentation to be used for securing the plate and the shaped chair to a floor. 15

33. The shaped chair of claim **32** comprising:

- a) the means for adding weight being a closable aperture situated in the base; and
- b) the closable aperture receiving a flowable, weight-adding material to render the shaped chair substantially immobile. 20

34. The shaped chair of claim **33** comprising:

- a) the closable aperture receiving a bag to receive the flowable, weight-adding material and to be within the shaped chair; and 25
- b) the flowable, weight-adding material being sand.

35. The shaped chair of claim **34** comprising:

- a) at least one arm for the shaped chair; and
- b) the means for retaining being removable.

12

36. The shaped chair of claim **35** comprising:

- a) the at least one arm being a pair of oppositely disposed arms;
- b) the pair of oppositely disposed arms including a first arm and a second arm;
- c) the set of indentations including a first indentation, a second indentation and a third indentation;
- d) the first indentation being near the first arm;
- e) the second indentation being near the second arm;
- f) the third indentation being near the chair back support;
- g) the first indentation, the second indentation, and the third indentation each having at least one threaded member secured therein; and
- h) the first indentation, the second indentation, and the third indentation each being adapted to receive the at least one plate.

37. The shaped chair of claim **35** further comprising the means for securing the shaped chair with a second shaped chair together in a side by side fashion.

38. The shaped chair of claim **35** further comprising the means for securing the shaped chair with a second shaped chair being together in a back to back fashion.

39. The shaped chair of claim **35** further comprising the means for securing the shaped chair to a second shaped chair being in a side by side fashion and to a third chair in a back to back fashion.

* * * * *



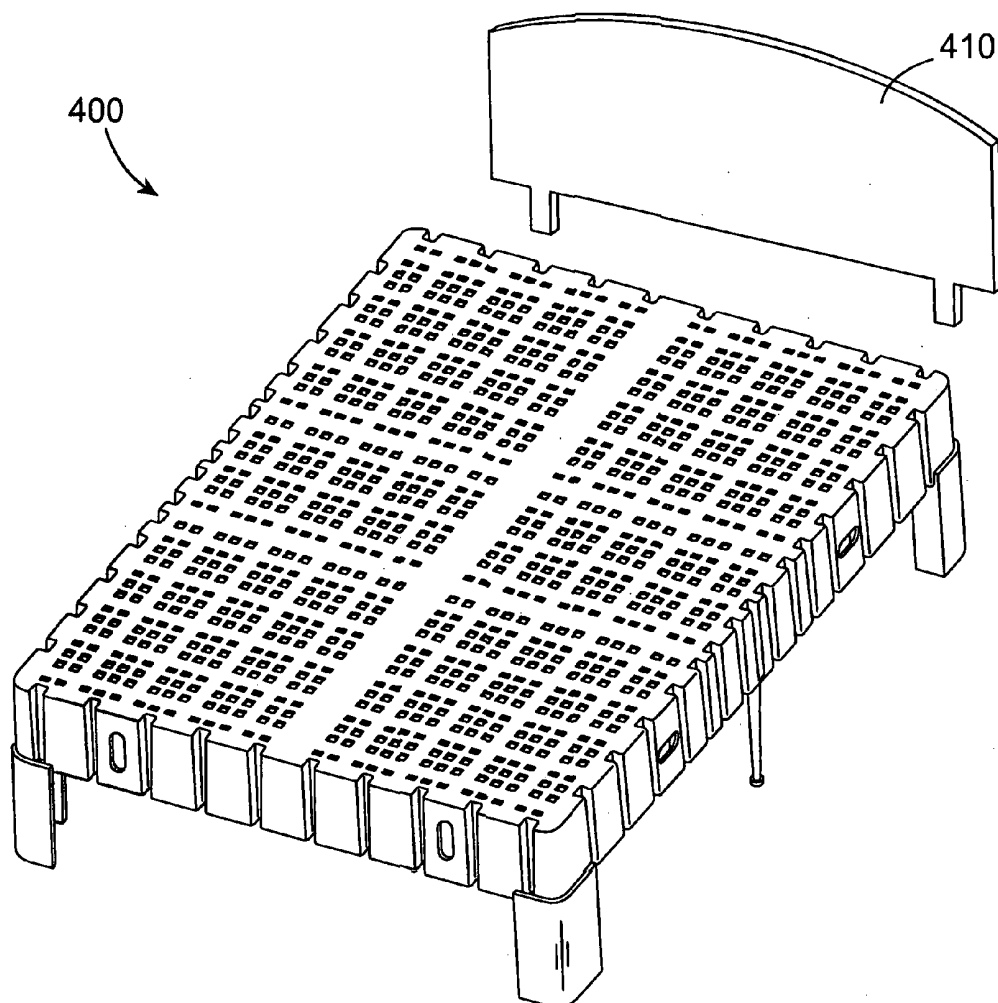
US 20040078897A1

(19) **United States**(12) **Patent Application Publication****Gladney**(10) **Pub. No.: US 2004/0078897 A1**(43) **Pub. Date: Apr. 29, 2004**(54) **PLASTIC MATTRESS FOUNDATION**(52) **U.S. Cl. 5/400**(76) **Inventor: Richard F. Gladney, Fairburn, GA (US)**(57) **ABSTRACT**

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(21) **Appl. No.: 10/617,946**(22) **Filed: Jul. 11, 2003****Related U.S. Application Data**(60) **Provisional application No. 60/395,449, filed on Jul. 11, 2002.****Publication Classification**(51) **Int. Cl.⁷ A47C 19/00**

A mattress assembly supporting a mattress and occupants is constructed substantially of plastic material. A mattress foundation defined by a semi-rigid cavity includes a generally flat top surface and at least one sidewall depending from the top surface. For pliability and structural weight reduction, the foundation may be ribbed, with air spaces formed therein. Ground support members may be used to retain the foundation in a substantially horizontal orientation above ground. To reinforce the foundation's structural integrity, support braces connecting opposing sidewall portions may be used. The braces may be detachable or integrally formed with the foundation. The assembly may include a headboard. To ease transport, casters may be included with the foundation. The assembly may be constructed of extruded or assembled plastic pieces; molded plastic; recyclable plastic; plastic reinforced with metal core, metal fiber, glass fiber, carbon fiber, resin or a combination of these.

**SA140****A90**

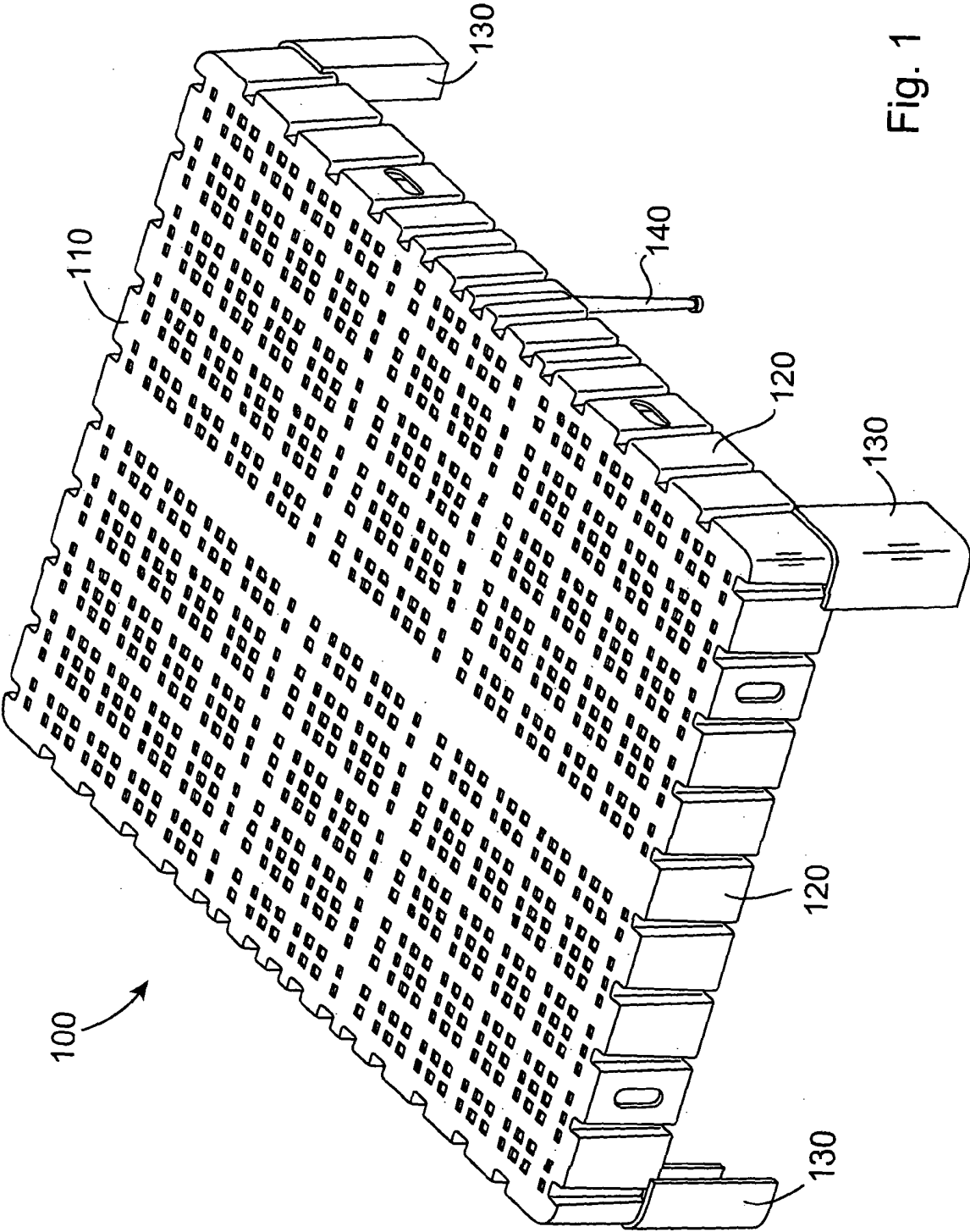
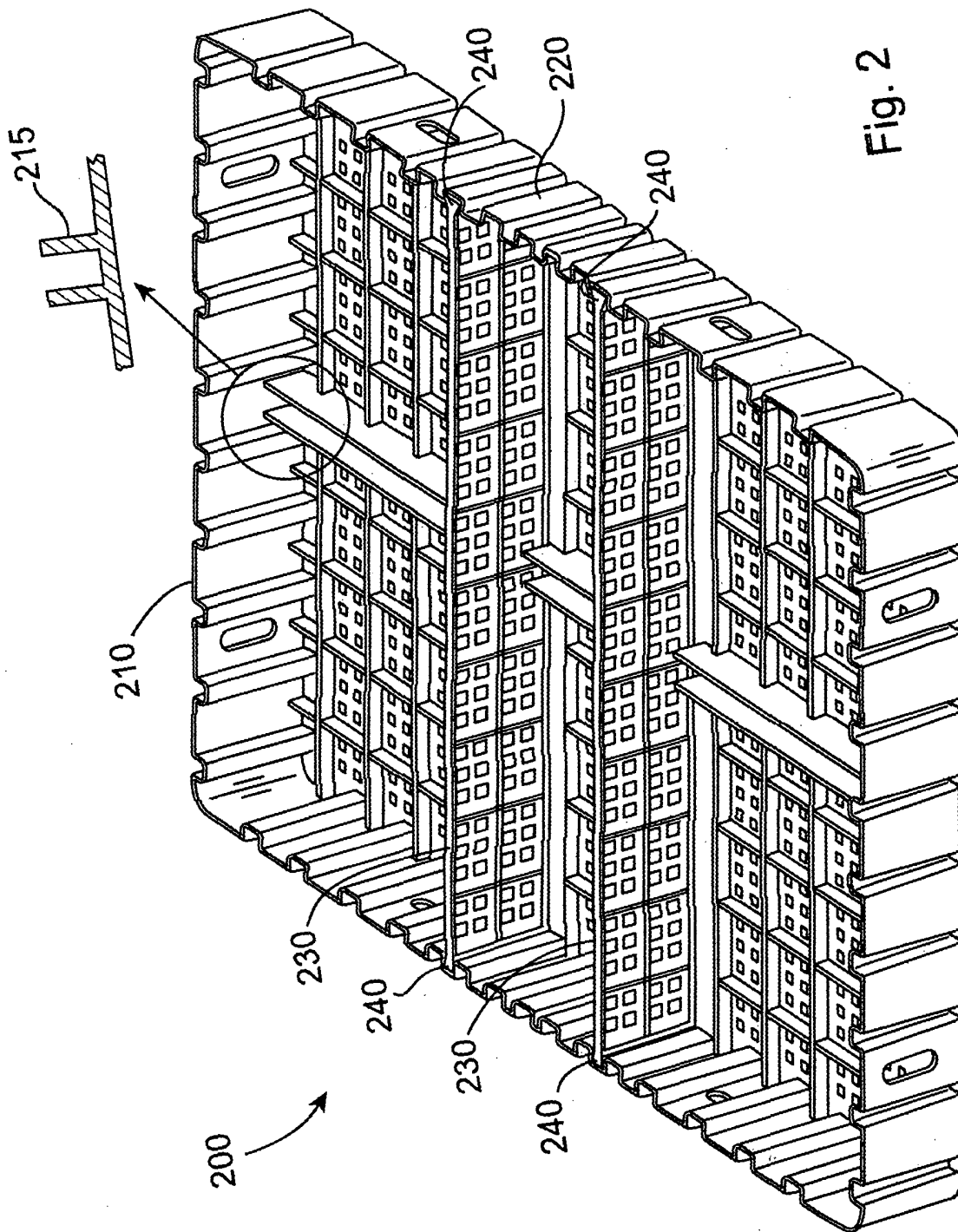


Fig. 1



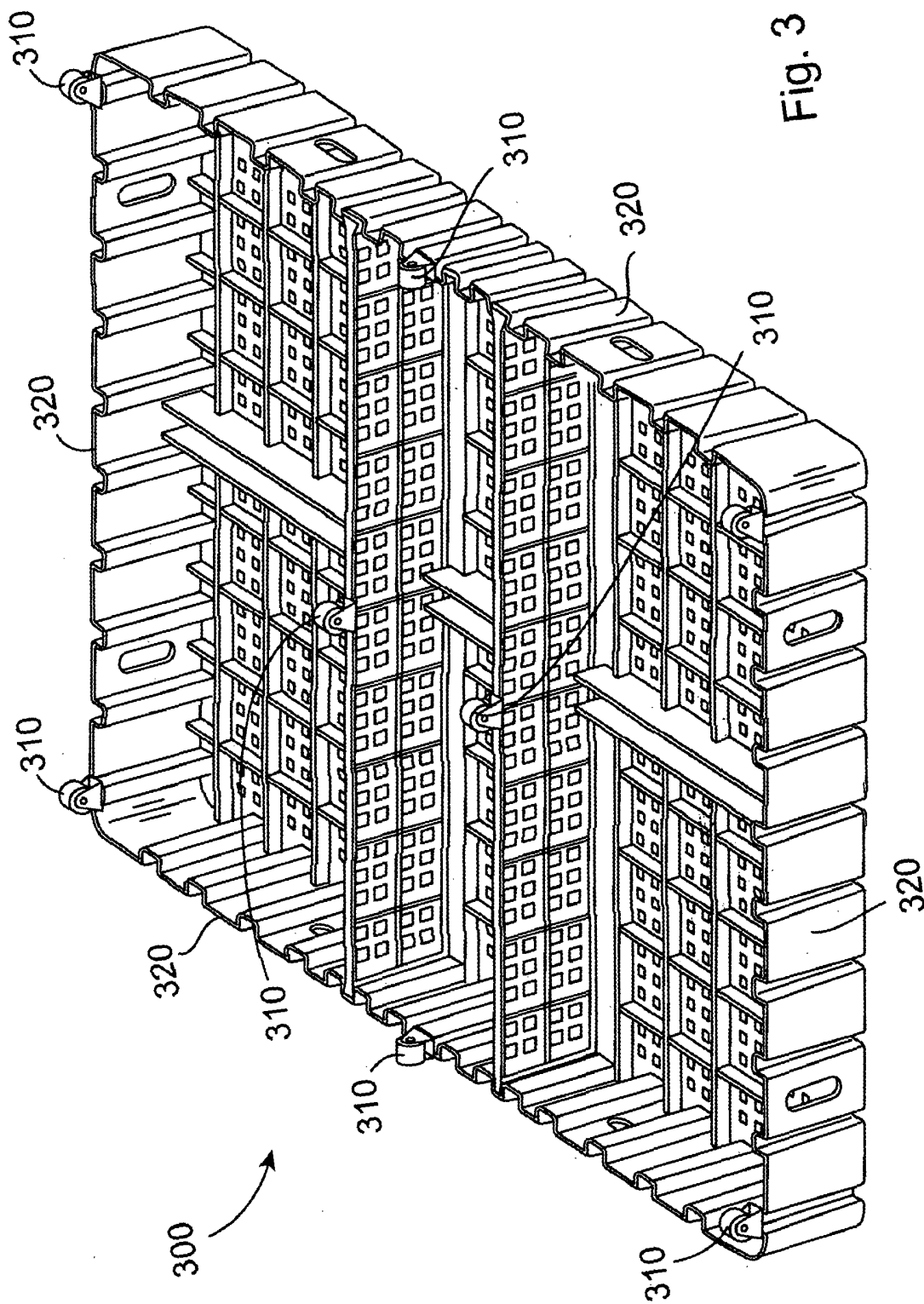
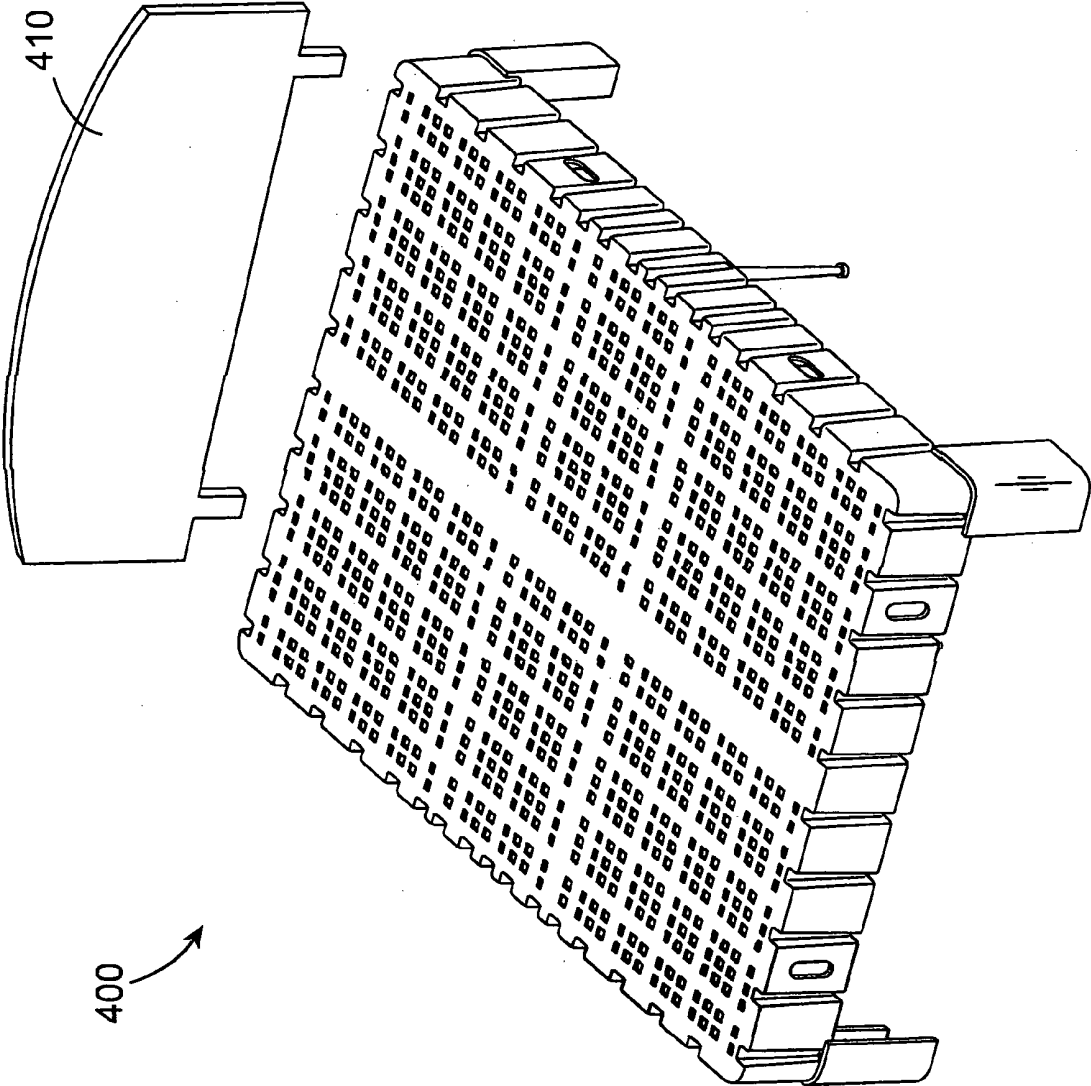


Fig. 3

Fig. 4



US 2004/0078897 A1

Apr. 29, 2004

1

PLASTIC MATTRESS FOUNDATION**CROSS-REFERENCE TO RELATED APPLICATIONS**

[0001] This application claims the benefit of PPA Ser. No. 60/395,449.

BACKGROUND OF THE INVENTION

[0002] Today, foundations for mattresses are typically constructed of a combination of materials, including wood, metal, and fabric, and may include support subassemblies such as edge-reinforcing springs. The size and number of materials, typically selected for low cost, present numerous difficulties for consumers, including handling and disposal. In fact, many U.S. states have instituted disposal fees for mattress foundations, which can be as high as \$100.00.

[0003] The use of plastic has emerged for certain subcomponents of mattress foundations. For example, plastic springs for a mattress foundation are disclosed in U.S. Pat. No. 5,720,471, and plastic interior corner guards are shown in U.S. Pat. No. 6,125,488. However, plastic has not been more widely used in mattress foundations. Hence, there remains a need for mattress foundations constructed exclusively or substantially of plastic.

SUMMARY OF THE INVENTION

[0004] The systems and methods described herein disclose a mattress foundation made entirely or substantially of plastic material. The foundation may be designed to fit into a standard bed frame. Ground support members, such as legs, may be added to the foundation to construct a mattress foundation and frame combination assembly.

[0005] The design principle is based, at least in part, on a combination of needs for a lighter-weight, more easily transportable, recyclable, and structurally robust mattress foundation or foundation-frame combination. In one embodiment, the foundation or foundation-frame combination assembly is designed to support a mattress of rectangular shape, such as a twin, full, queen, Olympic queen, or king mattress. In this embodiment, the foundation may be rectangular in shape and have four sidewalls.

[0006] The mattress foundation, or foundation-frame combination assembly, can withstand the combined load weight—that can be several hundred pounds—of a mattress and one or more occupants resting thereon. This is accomplished, at least in part, by the inclusion of a combination of supporting braces, reinforcing fins, and reinforcing trusses and/or other non-planar structures, disposed at structurally appropriate locations in, or along predetermined axes along, the foundation.

[0007] In an exemplary embodiment, the braces are designed to connect with, and structurally reinforce, the foundation in a snap-on, snap-off fashion; this can be accomplished, for example, by a tongue-and-groove, dovetail, or other functionally equivalent mating arrangements known in the art. To further increase the structural integrity of the foundation, the tongue and groove shapes are designed to prevent outward deflections of the foundation under load weights.

[0008] The mattress foundation comprises a cavity—made substantially or entirely of plastic material—defined by a

generally planar top surface and one or more sidewalls depending downward from it. The foundation may be inserted into a standard bed frame, or, in an alternative embodiment, sustained above ground—in an approximately horizontal position—by ground support members connected with the foundation. The ground support members, which could be legs, may be removably coupled with the foundation or integrally formed with it. The foundation and the legs constitute a mattress foundation-frame combination assembly.

[0009] In one embodiment, the legs are attached to the foundation through a mating arrangement; the mating may involve a tongue-and-groove, dovetail, or other functionally equivalent configuration known in the art. The legs may have cross-sectional shapes designed based on, among other things, aesthetic and/or structural-mechanical considerations.

[0010] The use of a combination of braces, fins, trusses, and other, non-planar components for structural reinforcement is further justified when ground support members, or legs, retain the foundation in a substantially horizontal position above ground. In this embodiment, with the foundation resting on a set of legs—and not resting entirely on the ground along the lower edges of its one or more sidewalls—it becomes all the more important for the foundation's structural design to ensure that deflections and twists on the foundation, due to load weights, are sufficiently suppressed.

[0011] The overall shape of the mattress foundation is at least partly chosen to be compatible with the type of mattress that it is intended to support. For example, if the mattress is rectangular in shape, then the foundation may be reasonably designed to have a compatibly-sized rectangular top surface. In other embodiments, other shapes may be used; for example, a heart-shaped foundation may be designed for a similarly shaped mattress for use in, say, “honey-moon suites” in hotels. In other exemplary embodiments, circular, elliptical, or polygonal foundation shapes may be designed, consistent with the particular mattress type to be used, and in consonance with load weight considerations.

[0012] To lighten the weight of the plastic foundation, to increase its pliability for sleeping comfort, to improve its structural integrity under load weights, or for any combination of these, and other, reasons, the top surface and/or side walls of the foundation may optionally be ribbed, resulting in air spaces formed therein. Some portions of the top surface and/or the sidewalls may be designed to have one or more continuous, uninterrupted regions of plastic material, tying together opposing sidewall portions; this may be beneficial in terms of structural integrity, aesthetics, and a combination of these and/or other reasons.

[0013] In one embodiment, the sidewalls may be corrugated and/or have non-planar components, including, for example, trusses, that improve the structural integrity of the assembly.

[0014] The mattress foundation or foundation-frame combination assembly may optionally include a headboard that is attached or integrally formed with the foundation or the combination assembly. The lower part of the headboard may, in some embodiments, serve as a partial ground support to retain the foundation above ground.

SA145

A95

US 2004/0078897 A1

Apr. 29, 2004

2

[0015] To improve the mobility of the foundation, casters may be installed on, or integrally formed with, the foundation, for ease of rolling and transport. The casters may be disposed at select locations along the edges of, or on, one or more of the sidewalls, depending on the desired orientation of the foundation during transport. If a foundation is to be transported vertically, for example, then the casters may be connected with a sidewall, disposed perpendicularly to the surface of the sidewall.

[0016] In one embodiment, the foundation cavity may be designed to have mating shapes essentially along the periphery above the top surface and on the lower edges of the sidewalls, so that multiple foundations may be securely stacked—for example, one on top of another or, alternatively, vertically side by side—for easy shipment or retail store display; in this embodiment, the bottom of one foundation securely mates with the top of another foundation.

[0017] A person of ordinary skill in the art would know, or be able to readily ascertain, that there are various plastic compositions that may be used for the construction of the mattress foundation or of the combination foundation-frame assembly. For example, the foundation or the combination assembly may be made entirely of plastic. Alternatively, the foundation or the combination assembly may be made, at least in part, of plastic and non-plastic material: examples are plastic on metal; plastic reinforced with metal, carbon, or other fibers; plastic reinforced with resin; and any combination of these and other compositions known to those of ordinary skill in the art.

[0018] Furthermore, the plastic used in the construction of the mattress foundation, or of the foundation-frame assembly, may be molded plastic, made according to one or more of the plurality of methods known in the art, such as compression molding, injection molding, gas-assisted injection molding, vacuum molding, low-pressure molding, blow molding, and other molding methods. Those of ordinary skill in the art would know that various types of plastic may be used in the mattress foundation or in the foundation-frame combination assembly; examples include polyurethane, polyethylene, polystyrene, polyvinyl chloride, and polypropylene.

[0019] In a preferred embodiment, the plastic material is recyclable, so that if the owner of the mattress foundation or foundation-frame combination assembly wishes to dispose of the same, he or she would be able to do so without having to incur the fees that many municipalities charge for disposal of such items of furniture.

BRIEF DESCRIPTION OF THE FIGURES

[0020] The foregoing and other objects and advantages of the invention will be appreciated more fully from the following further description thereof, with reference to the accompanying drawings, wherein;

[0021] FIG. 1 is a top perspective view of a plastic mattress foundation and frame combination assembly;

[0022] FIG. 2 is a bottom perspective view of a plastic mattress foundation;

[0023] FIG. 3 is a bottom perspective view of a plastic mattress foundation including casters; and

[0024] FIG. 4 depicts a plastic mattress foundation and frame combination, including a headboard.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

[0025] To provide an overall understanding of the invention, certain illustrative embodiments will now be described. These embodiments include, but are not limited to, mattress foundations formed entirely or substantially of molded plastic. However, it will be understood by one of ordinary skill in the art that the systems described herein can be adapted to other plastic foundations, such as foundations formed of extruded and assembled plastic pieces, or composite foundations of plastic over non-plastic structural members (e.g., metal) or reinforced plastic (e.g., with glass or carbon fibers, or fillers). All such modifications as would be clear to one of ordinary skill in the art are intended to fall within the scope of the systems described herein.

[0026] FIG. 1 is a top perspective view of a plastic mattress foundation and frame combination assembly. The foundation 100 may include a top surface 110 and four sidewalls 120. Attached to, or integrally formed with, the foundation 100 may be four corner supports 130 and two supplemental supports 140. The foundation 100 may be used to support a mattress of any type, including a foam mattress, as well as mattresses of different constructions including pocketed coil construction, wire spring construction, water bed or any other suitable mattress construction. Moreover, it will be understood that although the depicted embodiment comprises a queen size mattress, mattresses of any size may be constructed according to the methods described herein.

[0027] The foundation 100 may be formed of any suitable plastic material, including, for example, polyurethane, polyethylene, polystyrene, polyvinyl chloride, polypropylene, or any other moldable plastic that can be formed with sufficient strength to support the weight born by a mattress foundation (including a mattress and one or more human occupants). The foundation may be formed using compression molding techniques such as injection molding, gas-assisted injection molding, vacuum molding, low-pressure molding, or blow molding, in which plastic in some elastic or fluid form is formed into the foundation 100 and permitted to set into a mechanically rigid structure.

[0028] The top surface 110 of the foundation 100 may be ribbed as shown in FIG. 1, so that air spaces are formed therein. This reduces weight in areas where less mechanical support is required, or where some pliability is desirable for sleeping comfort on a mattress atop the foundation 100. Certain regions, such as a central portion of the top surface 110, may, by contrast, be formed of an uninterrupted strip of plastic that ties together opposing sidewalls 120. The sidewalls 120 may be corrugated, or contain other non-planar shapes to increase structural rigidity of the sidewalls 120, and the overall foundation 100. Any other truss structure or other structurally enhancing configuration known in the mechanical arts may be used to improve the overall strength and rigidity of the foundation 100.

[0029] The corner supports 130 and supplemental supports 140, may be removably attached to the foundation 100 through any conventional mating arrangement, such as a tongue and groove, dovetail, or other functionally equivalent configurations known in the art. According to one embodi-

SA146

A96

US 2004/0078897 A1

Apr. 29, 2004

3

ment, the corner supports **130** and the supplemental supports **140** may be integrally formed with the foundation **100**. While two supplemental supports **140** are shown, it will be appreciated that any number of supports **140** may be used as required by the anticipated load on the mattress foundation **100** and the corresponding inherent strength of the top surface **110** and sidewalls **120**. More particularly, the foundation **100** depicted in **FIG. 1** is a foundation for a queen size mattress. It is expected that a king size mattress foundation may require additional supplemental supports **140**, while a twin size mattress foundation may require no supplemental supports **140** whatsoever. Each supplemental support **140** and corner support **130** may have a cross-sectional shape to increase strength; examples are + shape, X shape, U shape, D shape, H shape, Z shape, C shape, V shape, M shape, B shape, T shape, circular shape, elliptical shape, L shape, heart shape, and any combination of these.

[0030] The overall structure of the foundation **100** may include mating shapes along an outside edge of the top surface **100** and along the bottom of the sidewalls **120**, such that a plurality of foundations **100** may be conveniently stacked for shipping, storage, handling, or retail display. In addition to increasing the stability of a stack of foundations in, for example, a retail display, this technique may reduce the cost of shipping and eliminate the need for traditional wooden shipping pallets or other intermediate supports when transporting or storing the foundations **100**.

[0031] **FIG. 2** is a bottom perspective view of a plastic mattress foundation. As shown in **FIG. 2**, the foundation **200** may include a bottom surface **210** with a cross-sectional profile **215** and one or more sidewalls **220**. One or more braces **230** may be connected to, or integrally formed with the foundation **200** such that opposing sidewalls **220** are interconnected to structurally support the foundation **200**. The foundation **200** may generally be similar to the foundation **100** described above with reference to **FIG. 1**.

[0032] The sidewalls **220** may include one or more grooves **240** adapted to receive a corresponding tongue on each of the braces **230**. The grooves **240** may be designed to allow for a snap-on, snap-off attachment of the braces to the foundation, thereby easing the assembly or disassembly of the foundation. Furthermore, the grooves **240** may be shaped to prevent undesirable outward deflection of the sidewalls under load weights. One example of such a shape is a trapezoid. Those of ordinary skill in the art would know of other shapes that can be used to accomplish the same purpose. Each brace **230** may include non-planar reinforcing structures and air spaces as described above generally with reference to the foundation **100** of **FIG. 1**.

[0033] The bottom surface **210** of the foundation **200** may include reinforcing structures to structurally reinforce the foundation **200**, which must support a mattress and one or more occupants of the mattress. One structure for achieving this is perpendicular fins, as shown in the cross-sectional profile **215**. Other reinforcing structures including trusses, additional braces, and so forth, may readily be used, provided their overall form is amenable to the selected manufacturing technique (most typically some form of compression molding).

[0034] The use of the support braces **230**, fins (shown in the cross-sectional profile **215**), trusses, and other non-planar reinforcing support structures is justified for more

than one reason. Unlike a mattress foundation that sits directly on a flat surface, and the lower edges of whose sidewalls serve as mechanical supports that resist twisting, bending, and undesirable deflection, a mattress foundation that rests on a set of ground support members (such as corner supports **130** and/or supplementary supports **140**) disposed at discrete points along the lower edge of the sidewalls **120**, is subject to undesirable mechanical forces of twisting, bending, and deflection that require additional restraining structural reinforcement to suppress.

[0035] Additionally, any looseness in the structure, and resulting motion from load weights (in particular, shifting load weights) may cause squeaking sounds that are undesirable to the occupant or occupants of the mattress. To this end, the methods and systems described herein use, in a preferred embodiment, a combination of structurally reinforcing braces **230**, fins (as shown in the cross-sectional profile **215**), trusses, and other non-planar components to suppress undesirable deflections, bending, and twisting of the foundation under load weights.

[0036] **FIG. 3** is a bottom perspective view of a plastic mattress foundation. The foundation **300** depicted in **FIG. 3** may be similar to any of the foundations described above in reference to **FIGS. 1 and 2**, as modified to include casters for easy rolling of the foundation **300**, either with or without a mattress in place. The foundation **300** may include one or more slots or openings to receive casters **310**, such as at the corners of the sidewalls **320**. As depicted, one or more casters **310** may also be attached to braces adjoining opposing sidewalls **320** in order to support regions of the foundation **300** inside the sidewalls **320**, while continuing to permit rolling of the foundation **300** on the casters **310**.

[0037] **FIG. 4** depicts a plastic mattress foundation-frame combination assembly including a headboard. The foundation **400** depicted in **FIG. 4** may be similar to any of the foundations described above in reference to **FIGS. 1-3**, as modified to include a headboard. A headboard **410** may be removably attached to, or integrally formed with, the foundation **400**, and may be formed of any of the plastic materials or composites described above.

[0038] In one aspect, there is described herein a recyclable mattress foundation. A foundation formed wholly or substantially from plastic may be readily recycled in a manner that permits recovery and reuse of plastic components. This may further present cost savings to a consumer who may be spared any applicable disposal fee for conventional mattress foundations.

[0039] In another aspect, there is disclosed herein a technique for manufacturing a mattress foundation that includes the steps of providing a foundation mold, inserting an elastic plastic into the mold so that the plastic takes the form of the mold, curing the plastic (or cooling the plastic, or taking other suitable steps to cause the plastic to harden), and removing the plastic foundation from the mold.

[0040] In another aspect, there is disclosed herein a mattress foundation formed of a single piece of a single material. The one-piece mattress foundation has ground supports and may optionally include a headboard and/or casters.

[0041] Those of ordinary skill in the art will know, or be able to ascertain using no more than routine experimentation, many equivalents to the embodiments and practices

SA147

A97

US 2004/0078897 A1

Apr. 29, 2004

4

described herein. Accordingly, it will be understood that the invention is not to be limited to the embodiments disclosed herein, but is to be interpreted as broadly as allowed under the law, according to the following claims.

We claim:

1. A mattress assembly constructed substantially of plastic material, comprising:

a. a mattress foundation comprising:

- i. a generally planar and essentially rigid top surface having an upper side and a lower side; and
- ii. at least one essentially rigid sidewall, having a lower edge, the sidewall extending substantially along the perimeter of the lower side of the top surface, depending downward from the top surface, defining a cavity; and

b. a frame assembly comprising a plurality of ground support members supporting the foundation, depending downward from the lower edge of the at least one sidewall, holding the foundation above ground, and maintaining the top surface in a substantially horizontal orientation.

2. The assembly of claim 1, wherein each of the ground support members may be removably or irremovably attached to the foundation.

3. The assembly of claim 1, wherein at least one of the ground support members is attached to the foundation by a mating configuration.

4. The assembly of claim 3, wherein the mating configuration is selected from the group consisting of: tongue-and-groove, dovetail, and any combination thereof.

5. The assembly of claim 1, wherein at least one of the ground support members is integrally formed with the foundation.

6. The assembly of claim 1, wherein each of the ground support members has a cross-sectional shape selected from the group consisting of: + shape, X shape, U shape, D shape, H shape, Z shape, C shape, V shape, M shape, B shape, T shape, circular shape, elliptical shape, L shape, heart shape, and any combination thereof.

7. The assembly of claim 1, wherein the perimeter of the top surface is polygonal.

8. The assembly of claim 7, wherein the polygon is selected from the group consisting of: a square and a rectangle.

9. The assembly of claim 8, wherein the foundation comprises four sidewalls.

10. The assembly of claim 9, wherein the foundation comprises four ground support members essentially located at four lower corners of the foundation.

11. The assembly of claim 1, wherein the perimeter of the top surface has a shape selected from the group consisting of: a circle, an ellipse, and a heart.

12. The assembly of claim 1, wherein the top surface is ribbed, having air spaces formed therein.

13. The assembly of claim 1, wherein the top surface has at least one region of continuous plastic spanning a substantially central portion of the top surface, tying together opposing portions of the at least one sidewall.

14. The assembly of claim 1, wherein the at least one sidewall is corrugated.

15. The assembly of claim 1, wherein the at least one sidewall comprises non-planar components that increase structural resistance to undesirable deflections from load weights.

16. The assembly of claim 1, further comprising at least one truss structure adjoining, and structurally reinforcing, opposing portions of the at least one sidewall.

17. The assembly of claim 1, wherein the upper side of the top surface further includes a first mating structure, and an edge region of the at least one sidewall further includes a second mating structure adapted to engage with the first mating structure, thereby allowing a plurality of mattress foundations to be securely stacked.

18. The assembly of claim 1, further including a headboard tangentially extending vertically along one end of the foundation.

19. The assembly of claim 18, wherein the headboard is removably attached to the foundation.

20. The assembly of claim 18, wherein the headboard is integrally formed with the foundation.

21. The assembly of claim 18, wherein the headboard is constructed substantially of plastic material.

22. The assembly of claim 1, wherein the foundation further includes a plurality of openings for receiving casters, the casters being used for easy rolling of the foundation.

23. The assembly of claim 22, wherein each of the plurality of casters is removably attached to the foundation by a latching configuration selected from the group consisting of: tongue-and-groove and dovetail.

24. The assembly of claim 1, further comprising at least one brace connecting opposing portions of the at least one sidewall.

25. The assembly of claim 24, wherein each of the at least one brace is integrally formed with the foundation.

26. The assembly of claim 24, further comprising at least one pair of grooves on opposing portions of the at least one sidewall, each of the at least one pair of grooves receiving one end of the at least one brace by a configuration selected from the group consisting of: tongue-and-groove and dovetail.

27. The assembly of claim 26, wherein the grooves are shaped to latchingly engage with the at least one brace.

28. The assembly of claim 26, wherein each of the at least one pair of grooves is shaped to prevent outward deflection by the opposing portions of the at least one sidewall.

29. The assembly of claim 24, wherein at least one of the at least one brace includes a non-planar reinforcing structure.

30. The assembly of claim 24, wherein at least one of the at least one brace is ribbed, having air spaces formed therein.

31. The assembly of claim 1, wherein the lower side of the top surface further comprises at least one reinforcing fin, oriented perpendicularly to the lower side and extending between opposing sides of the at least one sidewall.

32. The assembly of claim 1, wherein the lower side of the top surface further comprises at least one reinforcing truss, oriented perpendicularly to the lower side and extending between opposing sides of the at least one sidewall.

33. The assembly of claim 1, wherein the plastic material comprises recyclable plastic.

34. The assembly of claim 1, wherein the plastic material comprises molded plastic.

SA148

A98

US 2004/0078897 A1

Apr. 29, 2004

5

35. The assembly of claim 34, wherein the molded plastic is constructed by a molding technique selected from the group consisting of: compression molding, injection molding, gas-assisted injection molding, vacuum molding, low-pressure molding, blow molding, and any combination thereof.

36. The assembly of claim 1, wherein the foundation comprises extruded and assembled plastic pieces.

37. The assembly of claim 1, wherein the foundation is constructed, at least in part, of at least one non-plastic structural member covered by plastic.

38. The assembly of claim 37, wherein the at least one non-plastic structural member is metal.

39. The assembly of claim 1, wherein the plastic material includes reinforced plastic.

40. The assembly of claim 39, wherein the reinforced plastic contains material selected from the group consisting of: glass fiber, carbon fiber, metal fiber, resin, and any combination thereof.

41. The assembly of claim 1, wherein the plastic material is selected from the group consisting of: polyurethane, polyethylene, polystyrene, polyvinyl chloride, polypropylene, a moldable plastic, and any combination thereof.

42. A mattress foundation constructed substantially of plastic material, comprising:

- a. a generally planar and essentially rigid top surface having an upper side and a lower side;
- b. at least one essentially rigid sidewall extending substantially along the perimeter of the lower side of the top surface and extending downward from the top surface, defining a cavity; and
- c. at least one structurally reinforcing brace disposed along the lower side of the top surface, connecting opposing portions of the at least one sidewall.

43. The foundation of claim 42, wherein each of the at least one brace is integrally formed with the foundation.

44. The foundation of claim 42, further comprising at least one pair of grooves on opposing portions of the at least one sidewall, each of the at least one pair of grooves receiving one end of the at least one brace by a mating configuration selected from the group consisting of: tongue-and-groove, dovetail, and any combination thereof.

* * * * *



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Karl et al.

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(54) **INTENSIVE USE BED**

(56) **References Cited**

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Staskon, Orland Park, IL (US)

U.S. PATENT DOCUMENTS

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 502 days.

| | | | |
|---------------|---------|------------|-------------|
| 1,924,026 A | 8/1933 | Clark | |
| 3,150,032 A * | 9/1964 | Rubenstein | 108/161 |
| 4,128,907 A * | 12/1978 | Gelbart | A47C 19/04 |
| | | | 5/200.1 |
| 4,234,977 A * | 11/1980 | Snow | A47C 17/64 |
| | | | 297/239 |
| 4,234,978 A * | 11/1980 | Snow | A47C 17/64 |
| | | | 297/239 |
| 4,774,733 A * | 10/1988 | Akers | A47C 27/085 |
| | | | 403/294 |
| 5,095,566 A | 3/1992 | Russell | |
| 5,100,204 A * | 3/1992 | Makihara | 297/452.65 |
| 5,303,438 A * | 4/1994 | Walker | A47D 15/008 |
| | | | 5/110 |
| 5,374,118 A * | 12/1994 | Kruck | 312/407 |
| 5,375,914 A * | 12/1994 | Donnelly | 297/452.18 |
| 5,490,292 A * | 2/1996 | Auburn | A47D 7/00 |
| | | | 5/400 |
| 5,879,115 A * | 3/1999 | Medal | 411/82 |
| 5,987,677 A * | 11/1999 | Betker | A47D 5/003 |
| | | | 5/655 |

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A47C 19/02 (2006.01)

A47C 19/00 (2006.01)

A47C 27/14 (2006.01)

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CPC **A47C 27/144** (2013.01); **A47C 19/021**
(2013.01); **A47C 19/025** (2013.01); **A47C**
31/02 (2013.01)

(58) **Field of Classification Search**

CPC **A47C 19/00**; **A47C 19/005**; **A47C 19/02**;
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108/57.28, 901, 147.11; 5/400, 503.1,
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See application file for complete search history.

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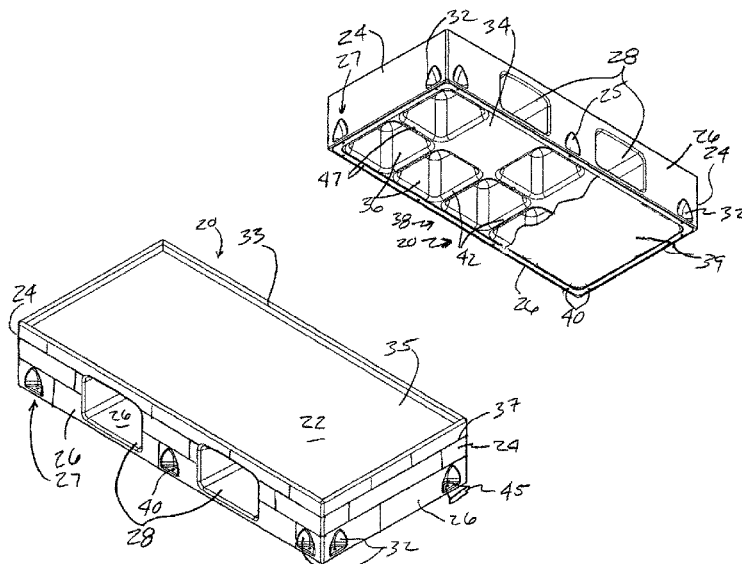
Primary Examiner — Robert G Santos

(57)

ABSTRACT

The invention is directed to a rotary molded bed having a sleeping surface surrounded by a raised edge, storage compartments molded into the side of the bed and a means for attaching a base of the bed to a floor. The rotationally molded bottom may comprise a flat surface or a honey-combed configuration. The hollow bed body may be filled with structural foam to provide support. The base is attached to a floor surface preferably having fastener openings in the base adapted to hold fasteners recessed in the base, the fasteners extending through a floor mount surface in the base. The fastener openings may have covers adapted to close the fastener openings to prevent tampering with the fasteners.

15 Claims, 12 Drawing Sheets



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US 9,661,933 B2

Page 2

(56)

References Cited

U.S. PATENT DOCUMENTS

| | | | | | |
|--------------|------|---------|------------|-------|-------------|
| 6,783,184 | B2 * | 8/2004 | DiBattista | | B29C 49/20 |
| | | | | | 297/452.14 |
| 6,952,851 | B1 * | 10/2005 | Mahoney | ..... | 5/690 |
| 7,273,571 | B2 * | 9/2007 | Laws | ..... | 264/45.7 |
| 7,287,816 | B1 * | 10/2007 | Karl | ..... | 297/452.65 |
| 8,007,059 | B2 * | 8/2011 | Karl | ..... | A47C 16/02 |
| | | | | | 108/147.11 |
| 8,220,085 | B2 * | 7/2012 | Claffy | ..... | A47C 19/202 |
| | | | | | 5/110 |
| 8,635,722 | B2 * | 1/2014 | Moon | ..... | A47C 19/024 |
| | | | | | 108/24 |
| 2002/0117944 | A1 * | 8/2002 | Chen | ..... | 312/249.11 |
| 2003/0132657 | A1 * | 7/2003 | DiBattista | ..... | B29C 49/20 |
| | | | | | 297/452.11 |
| 2005/0028275 | A1 * | 2/2005 | Hooper | ..... | A47C 19/025 |
| | | | | | 5/400 |
| 2009/0091229 | A1 * | 4/2009 | Karl | ..... | A47C 16/02 |
| | | | | | 312/351.1 |
| 2009/0307838 | A1 * | 12/2009 | Claffy | ..... | A47C 19/202 |
| | | | | | 5/8 |
| 2011/0296610 | A1 * | 12/2011 | Moon | ..... | A47C 19/024 |
| | | | | | 5/282.1 |
| 2013/0061395 | A1 * | 3/2013 | Karl | ..... | A47C 27/144 |
| | | | | | 5/503.1 |

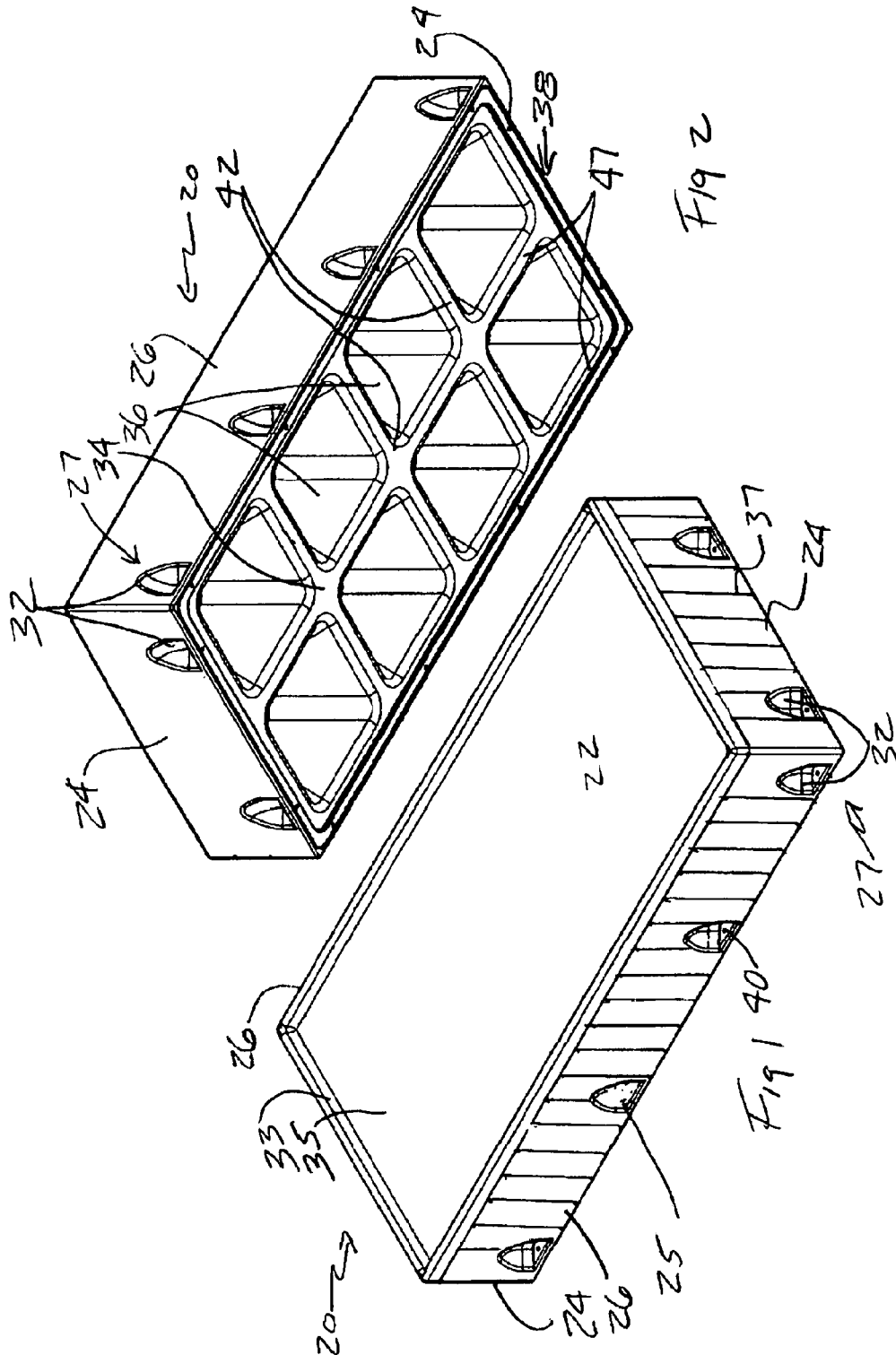
* cited by examiner

U.S. Patent

May 30, 2017

Sheet 1 of 12

US 9,661,933 B2

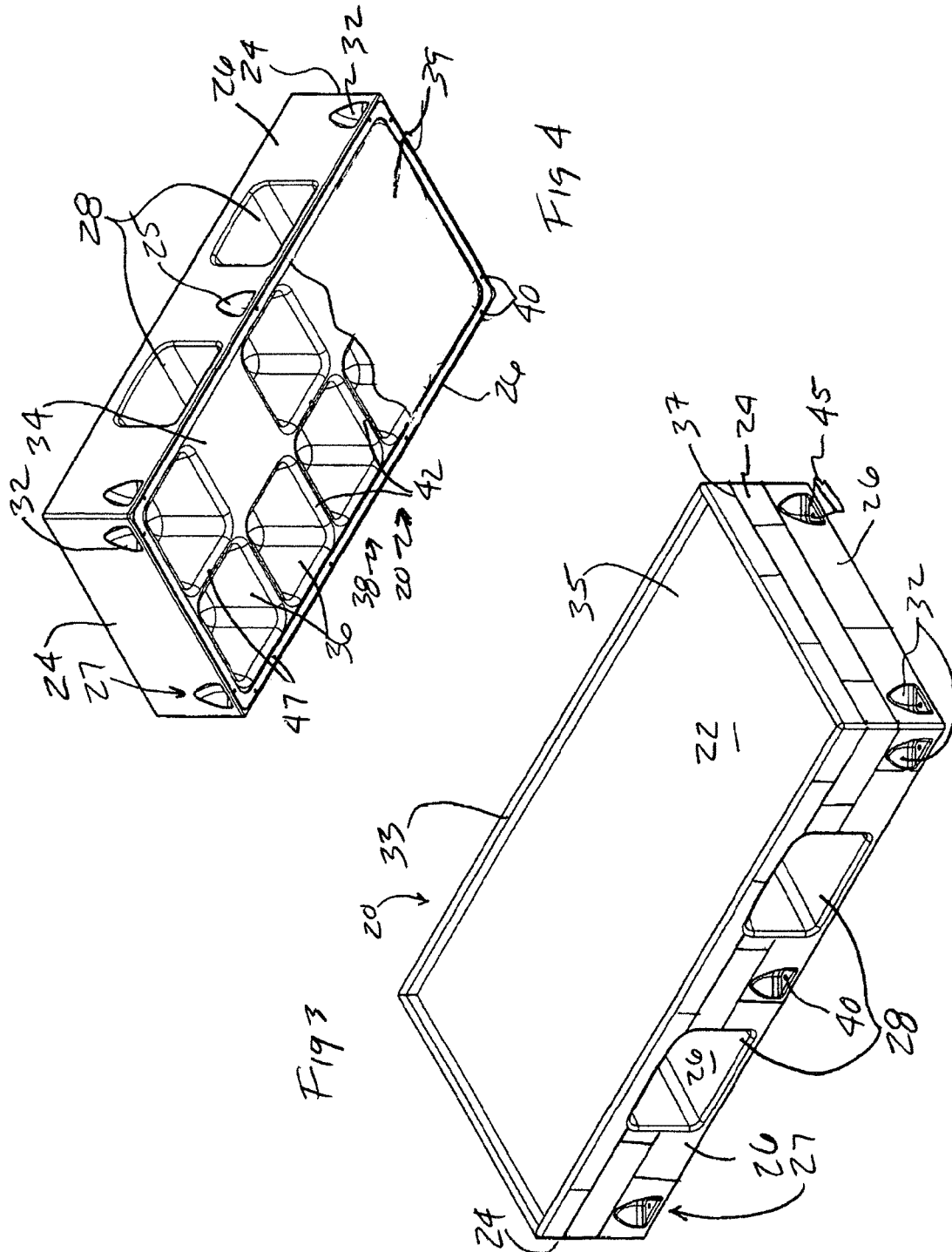


U.S. Patent

May 30, 2017

Sheet 2 of 12

US 9,661,933 B2

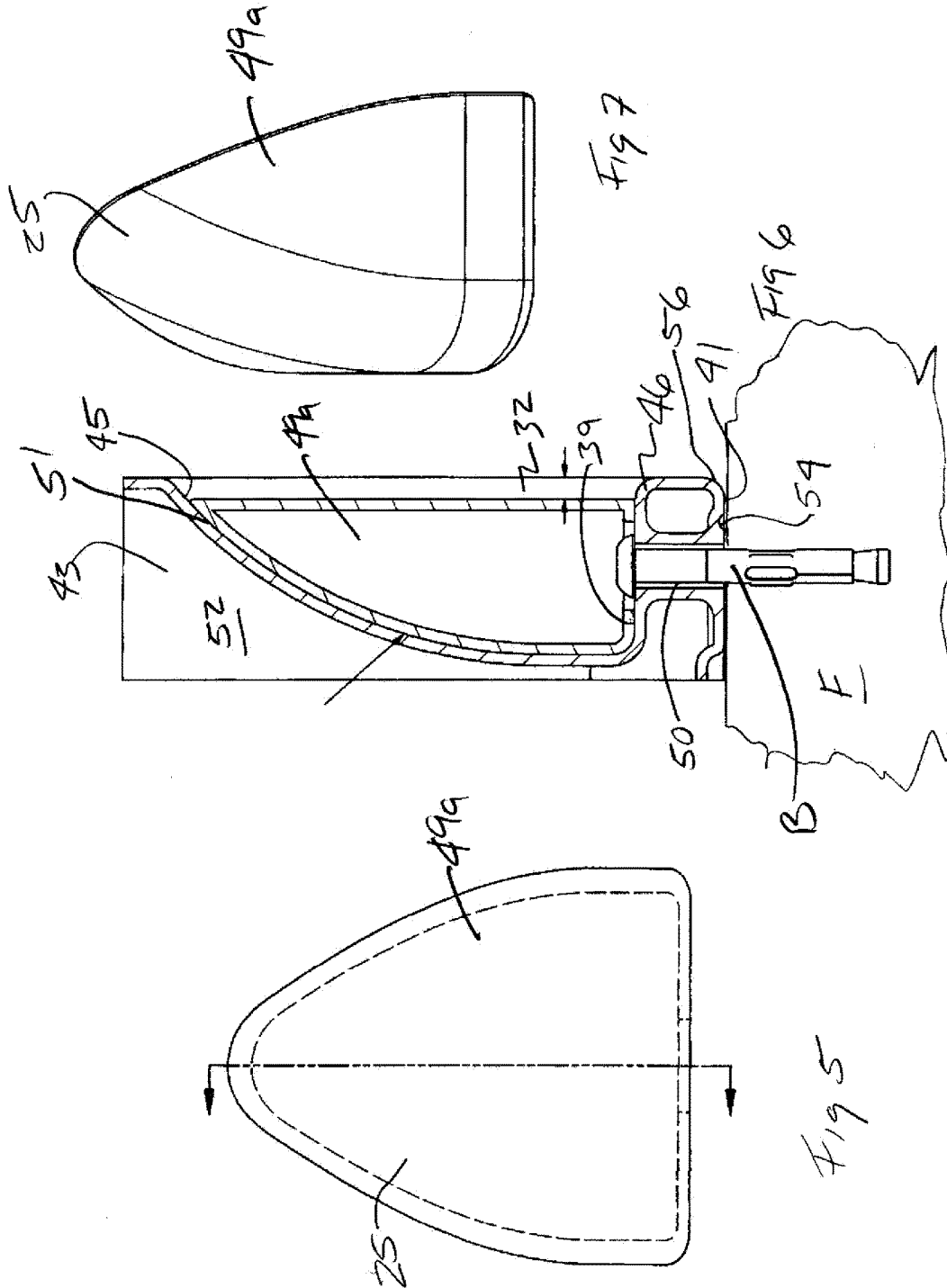


U.S. Patent

May 30, 2017

Sheet 3 of 12

US 9,661,933 B2

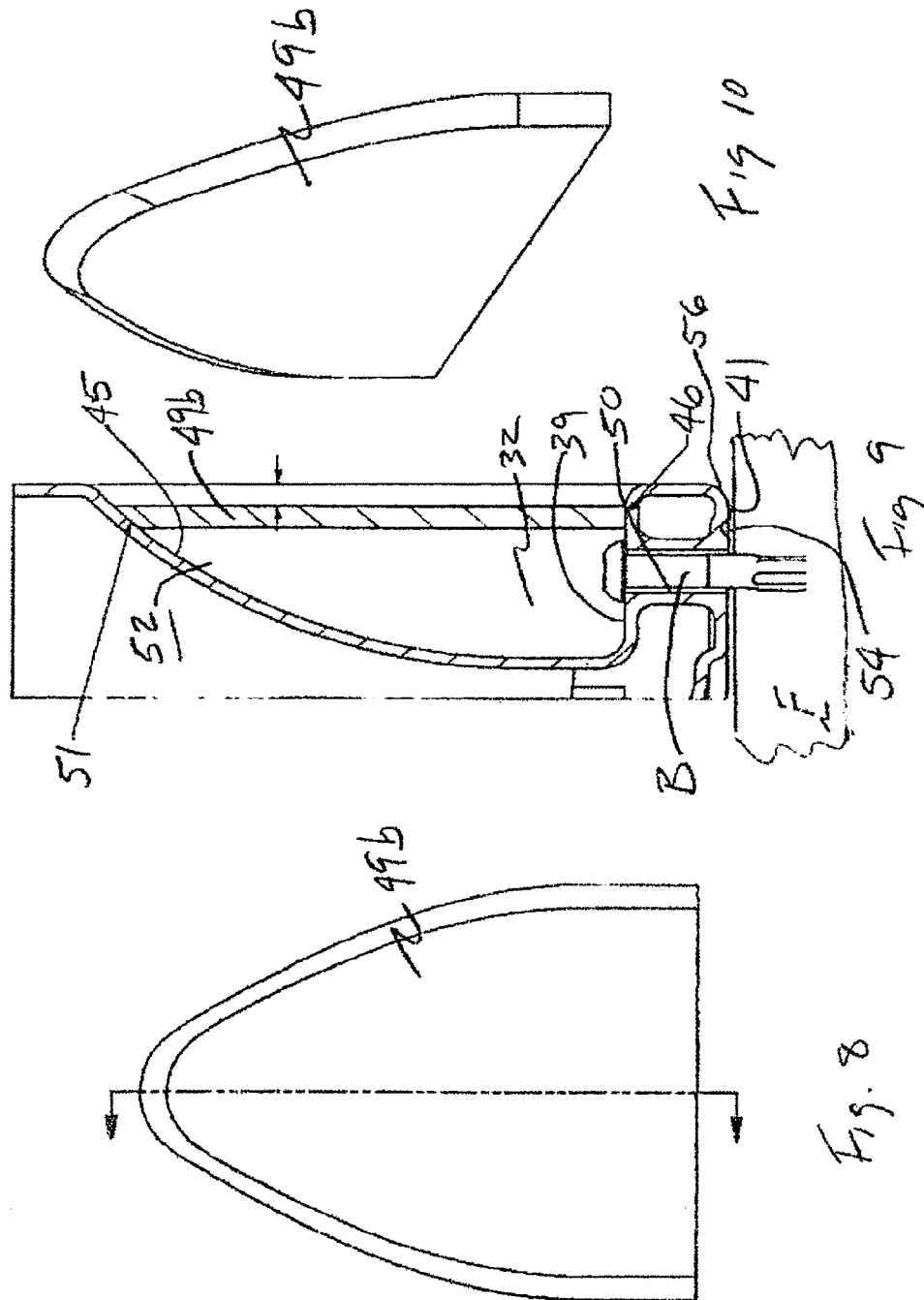


U.S. Patent

May 30, 2017

Sheet 4 of 12

US 9,661,933 B2



U.S. Patent

May 30, 2017

Sheet 5 of 12

US 9,661,933 B2

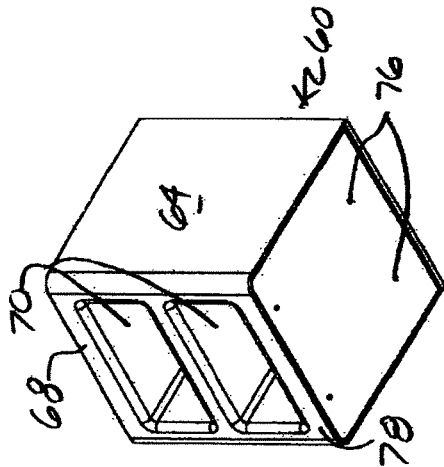


Fig. 12

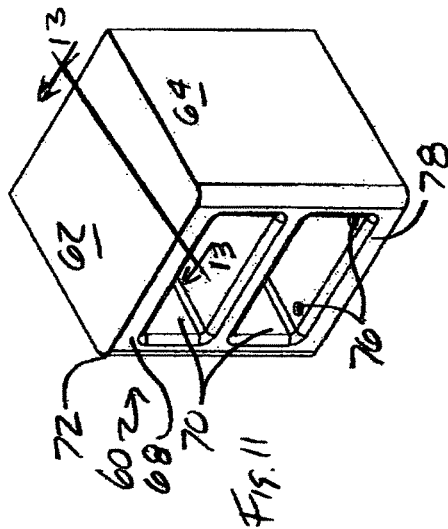


Fig. 11

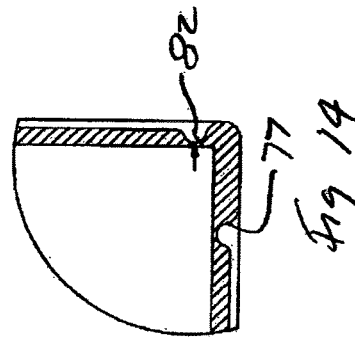


Fig. 14

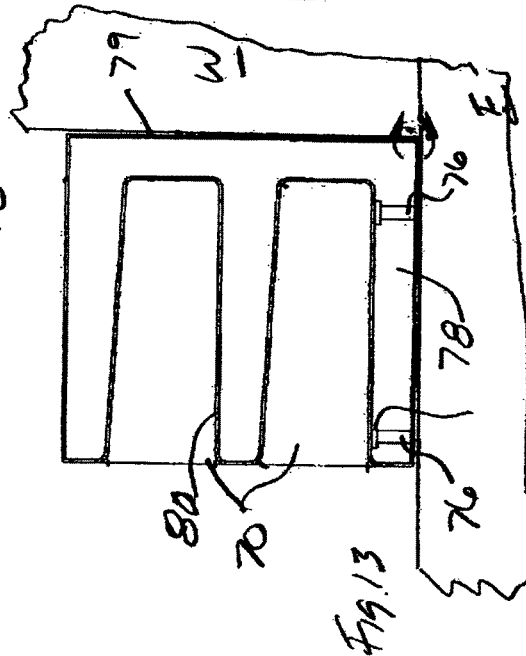
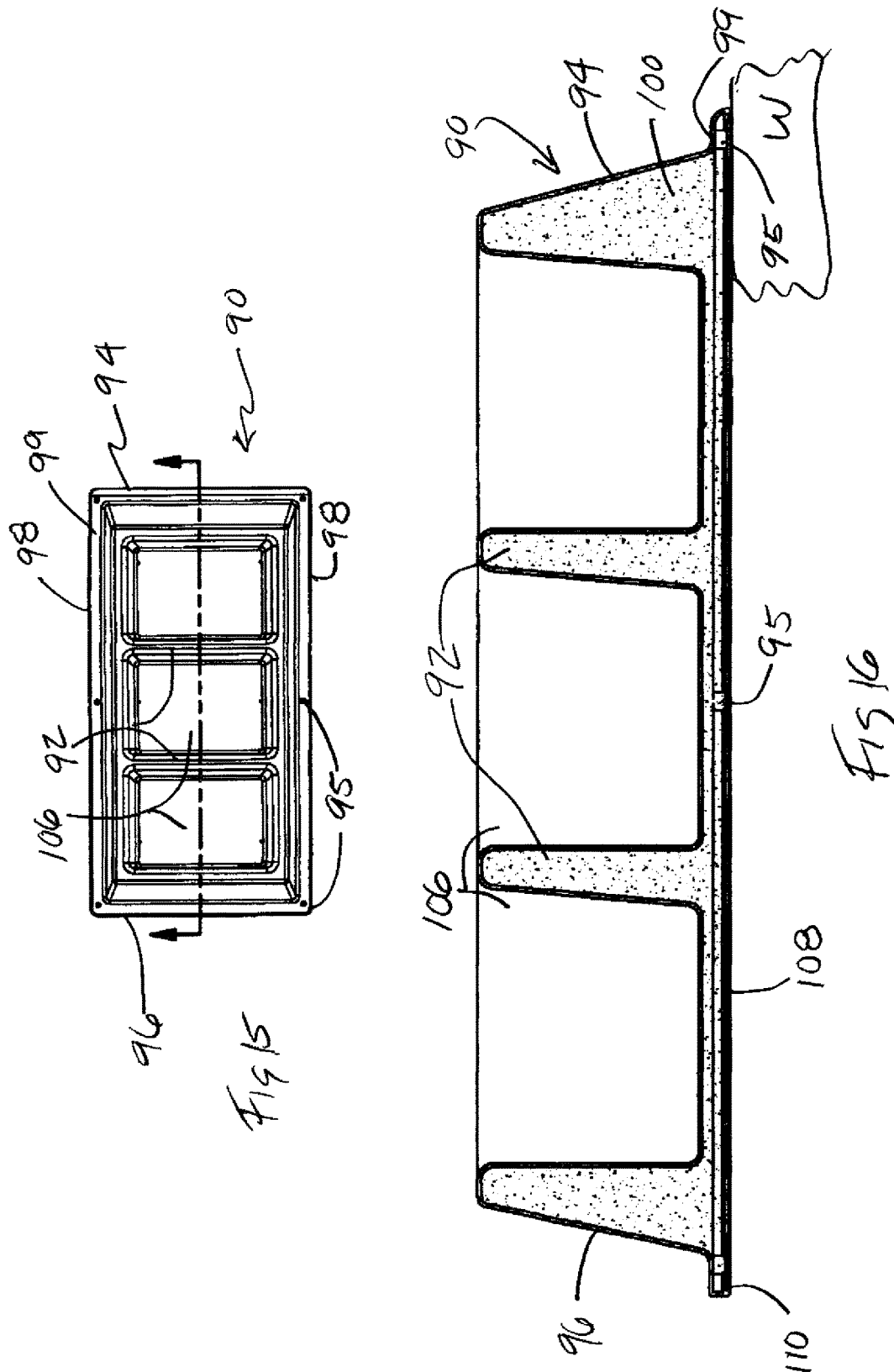


Fig. 13

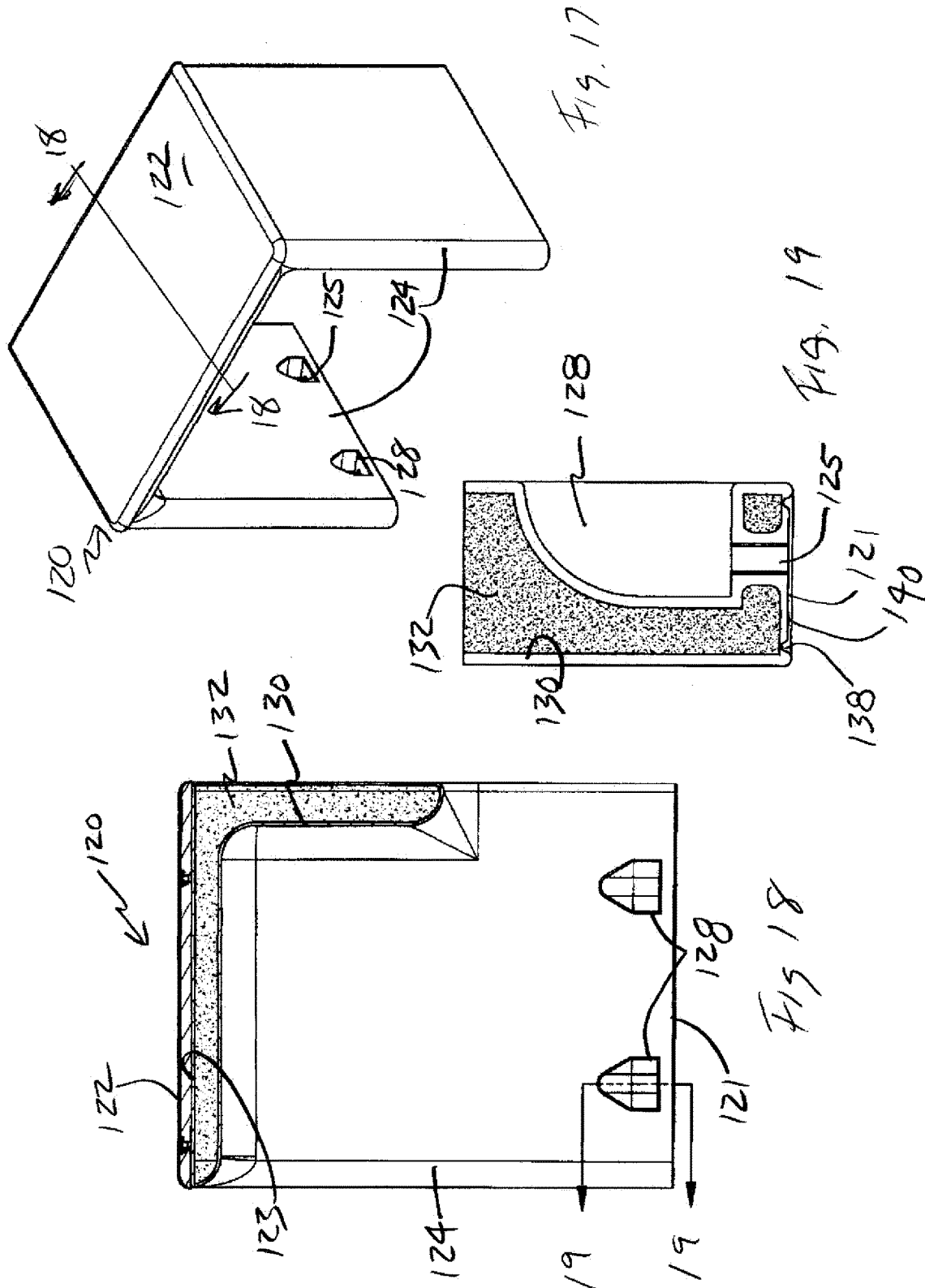


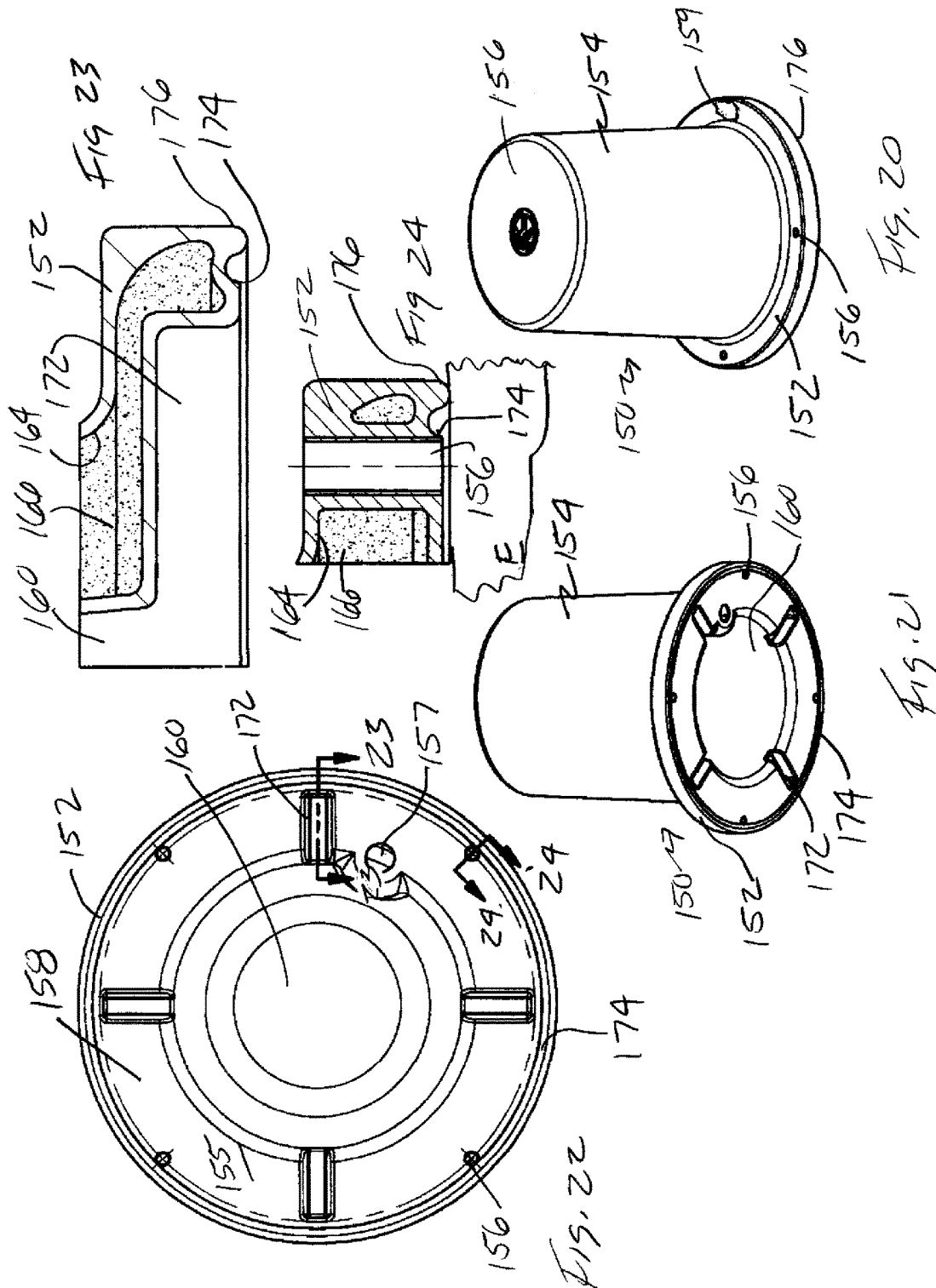
U.S. Patent

May 30, 2017

Sheet 7 of 12

US 9,661,933 B2



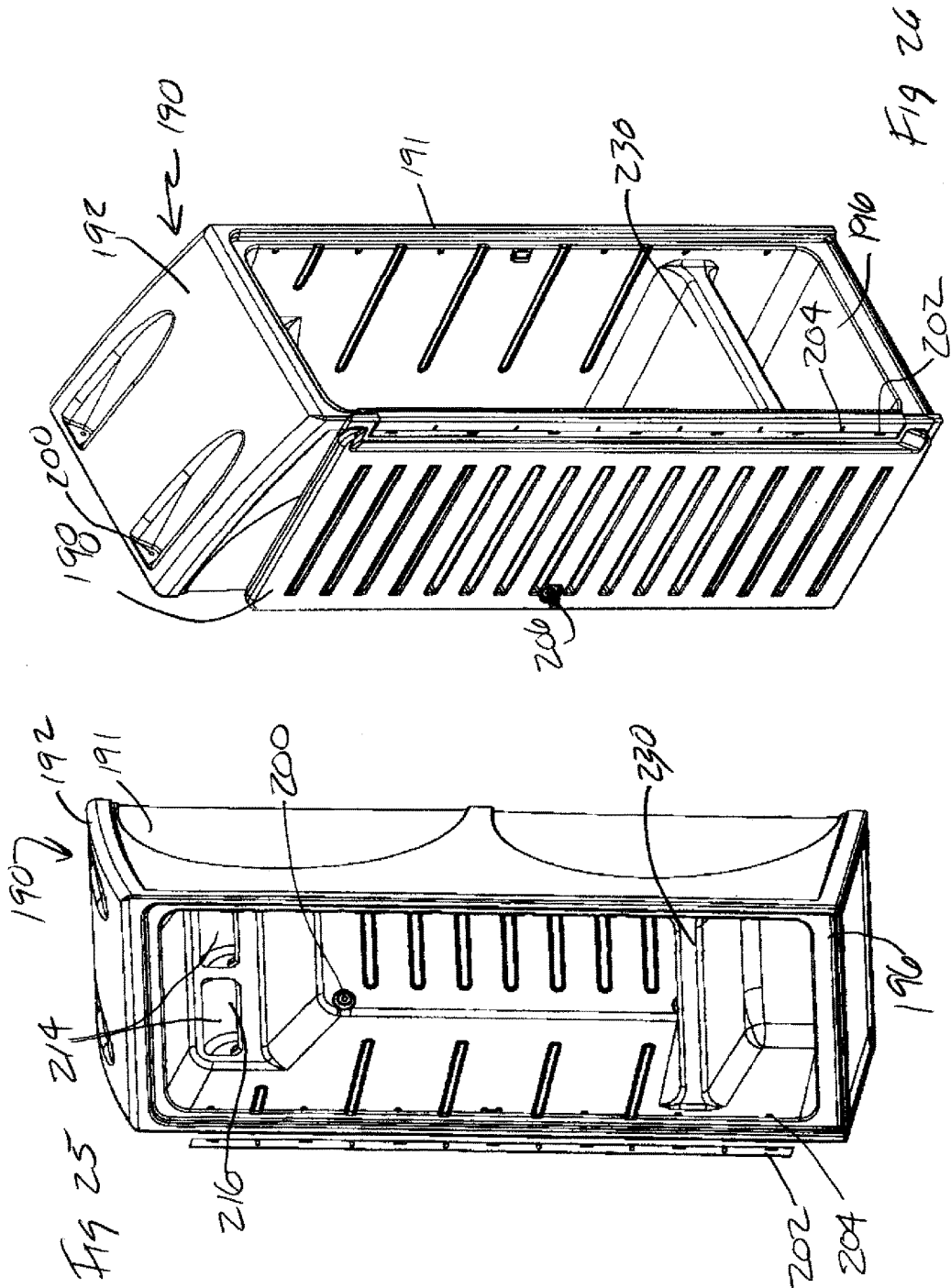


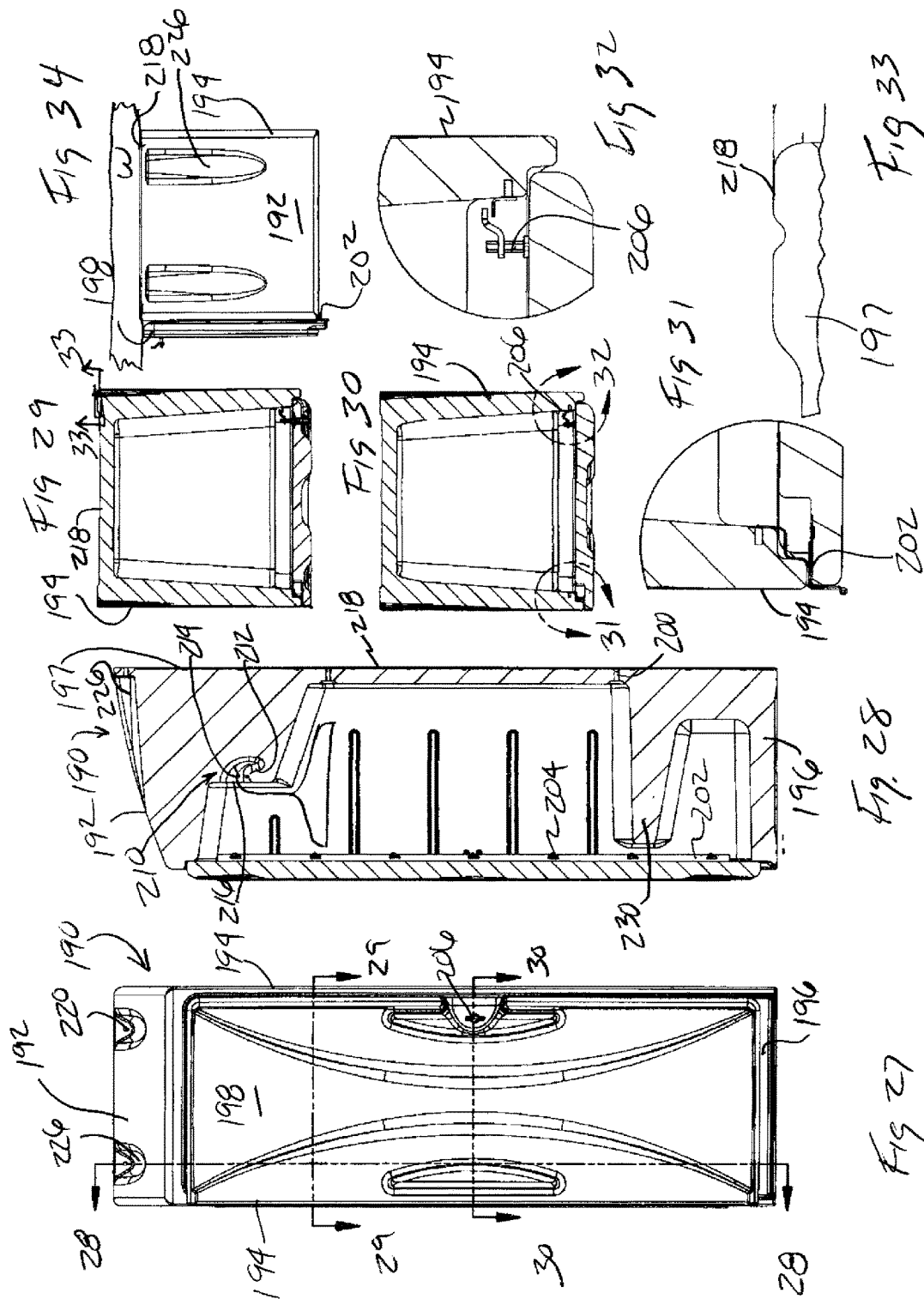
U.S. Patent

May 30, 2017

Sheet 9 of 12

US 9,661,933 B2





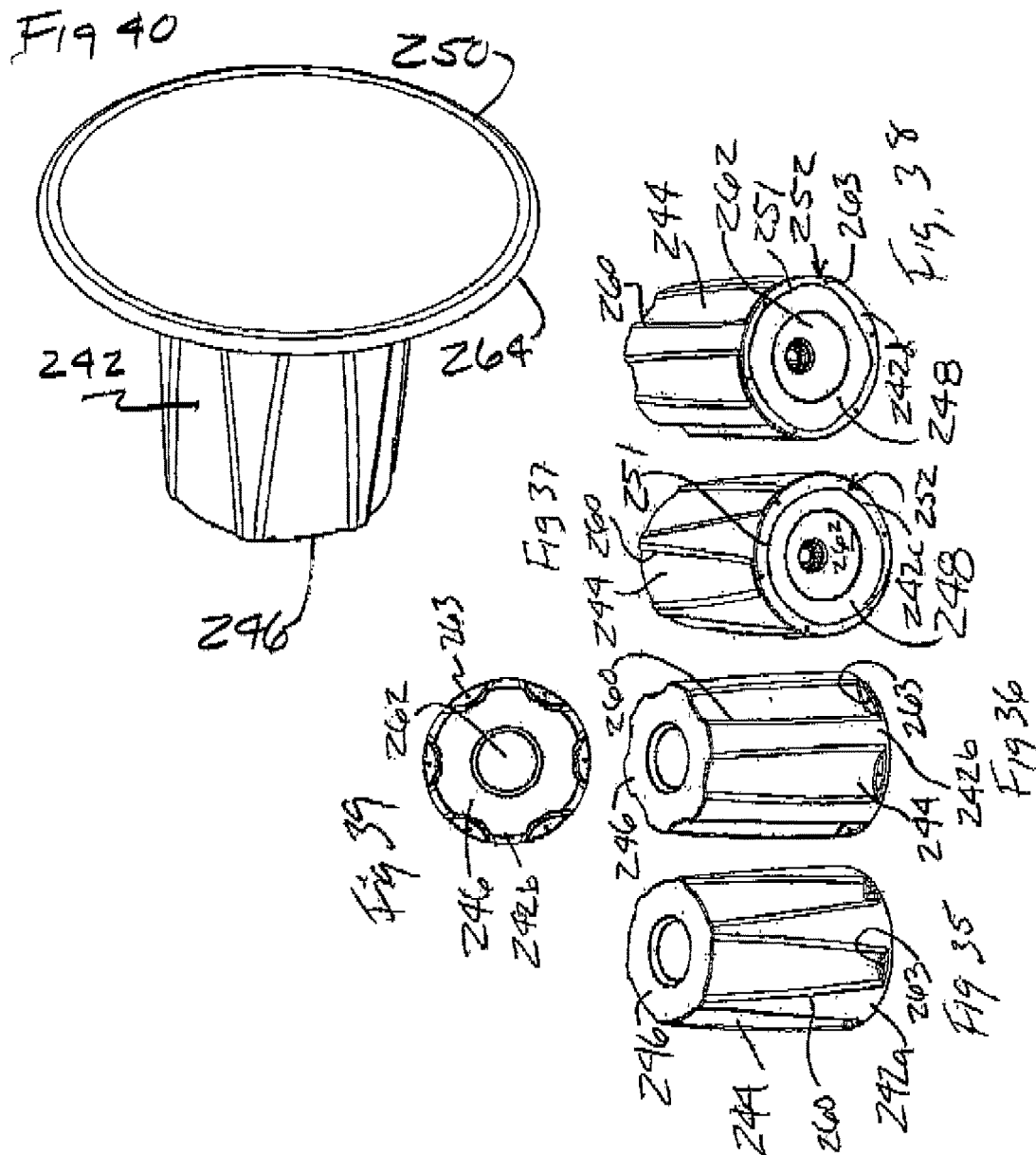
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U.S. Patent

May 30, 2017

Sheet 11 of 12

US 9,661,933 B2

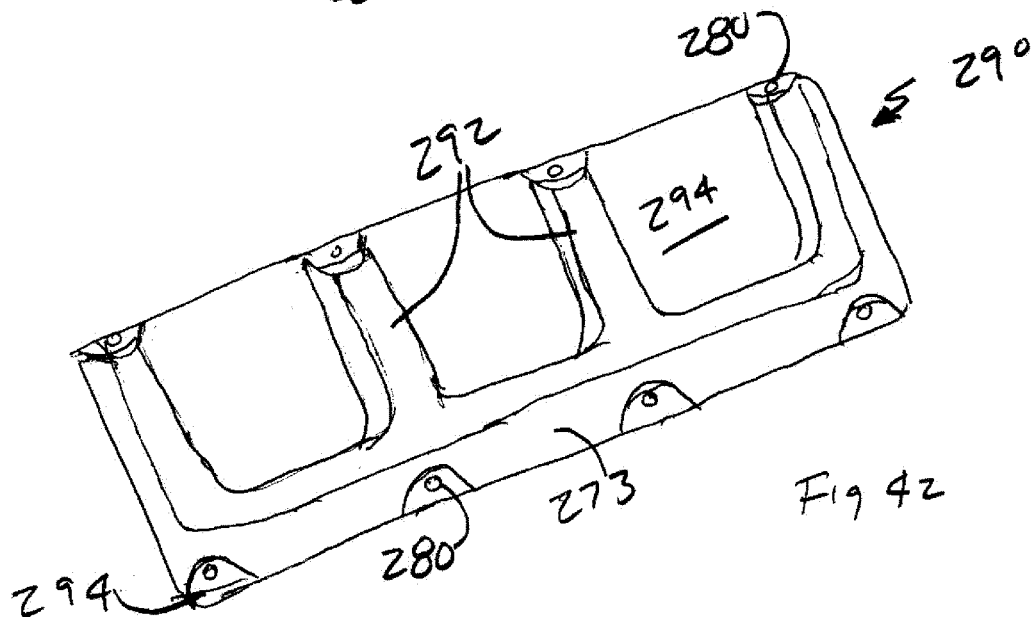
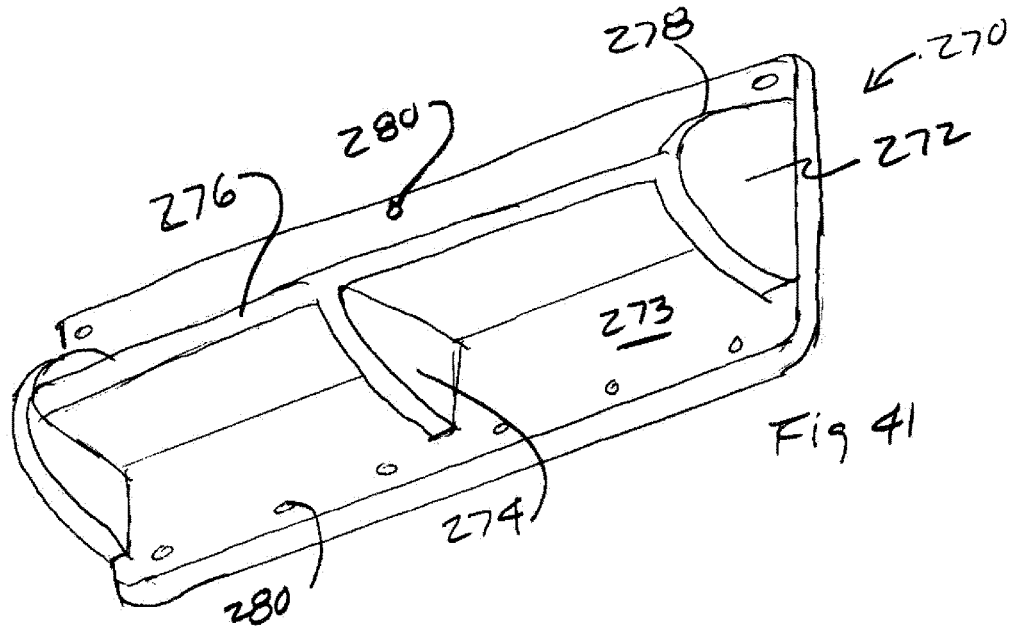


U.S. Patent

May 30, 2017

Sheet 12 of 12

US 9,661,933 B2



US 9,661,933 B2

1

INTENSIVE USE BED**RELATED APPLICATIONS**

This application is a continuation of co-pending U.S. Non-provisional application Ser. No. 13/186,853 filed Jul. 20, 2011 and claims the benefit of the filing date of said co-pending Non-provisional application Serial No. claims the benefit of the filing date of said co-pending Non-provisional application Ser. No. 13/186,853 filed Jul. 20, 2011, which claims the benefit of the filing date of U.S. patent application Ser. No. 11/868,308 filed Oct. 5, 2007, now U.S. Pat. No. 8,007,059 B2 entitled Intensive Use Furniture

FIELD OF THE INVENTION

Present invention relates generally to intensive use furniture for use in institutional settings such as prisons, jails, detention centers and psychiatric facilities. And more particularly to furniture for use by individuals where using a contraband barrier to secure the furniture components to each other, and to the floor or wall, sealing close seams at the interface is important to prevent urine and other liquids from penetrating into and under the product and prevent concealment of contraband.

BACKGROUND OF THE INVENTION

Intensive use furniture is designed for use in demanding environments. Facilities housing individuals for rehabilitation from health or legal problems require furniture for safely furnishing living quarters while being durable.

Intensive use furniture was formerly made of steel or wood. In previous years, fiberglass construction was used to replace wood and metal. Fiberglass offered a more appealing aesthetic than steel or wood, and more resistant to damage by the user and damage by bodily fluids. Wood furniture, for example is known to have problems with bed bugs in these settings. Fluids can rot and damage wood furniture resulting in weakness and creating odors. Fiberglass however, had several limitations. Fiberglass cracked and splintered if a direct force was applied. Manufacturing fiberglass furniture was very slow and involved custom production.

Intensive use furniture for such facilities requires durability and ease of cleaning. Furthermore, it is desired that furniture used in such intensive use facilities prevent improper use of that furniture by the user such as concealing items within or underneath the furniture. Typically, an inmate in a correctional or psychiatric facility may try to conceal drugs, weapons or other contraband in the furniture. The structure of the furniture must avoid all of these problems.

In addition, intensive use furniture is usually fixed to the floor or walls. This fixture must be relatively simple, secure and preferably sealing the seams between the furniture and the adjoining surface. Preferably, the fixation method is provided with a means for preventing tampering by the user of the furniture. Securing the furniture to the floor or wall further reduces the safety concerns on both the prisoners or patients and staff resulting in a safer environment.

It is desirable to provide furniture for such facilities having durability, aesthetically pleasing characteristics and design for comfortable use. Therefore there is a need to provide an intensive use furniture product without using assembly fasteners and having more impact-resistance, less weight and with much greater load-bearing capacity than

2

fiberglass, wood or metal construction furniture. The furniture must sealingly attach to a mounting surface such as a wall or floor.

BRIEF SUMMARY OF THE INVENTION

One embodiment of the present invention is directed to a line of furniture for use in demanding environments, comprising components for use in individual's cell or room, as well as use in common areas such as a bed, night stand, wardrobe, desk, footstool and wall shelving units. The individual components are rotationally molded using a flame retardant linear low-density polyethylene with a hollow or honeycomb interior and may be filled with polyurethane foam for increased durability and sound absorption. The components comprise a shell having a mounting surface, the mounting surface having an outer edge surrounding the shell. The mounting surface is adapted for sealingly attaching to a structural element such as a wall or floor. The shell is attached to the wall or floor by an attachment means such as threaded fastener extending through a bolt hole in the mounting surface wherein an insert of metal or hard plastic may be inserted in the bolt hole for support. Generally horizontal surfaces on shelves, wardrobes, and the like are formed to gently slope downward away from a support wall to prevent the user from placing items on top of the furniture and to resist supporting a ligature or climbing on top of the furniture. The mounting surface includes a contraband barrier for sealing seams between the mounting surface of the shell and the wall, floor or furniture component by a caulk channel formed around the entire perimeter of the mounting surface to isolate the interior portion of the mounting surface from fluids, contraband, weapons or other materials and contraband at the outer edge. The caulk channel in the mounting surface is adapted to receive a bead of caulk for forming a fluid resistant barrier between the furniture and the adjoining wall or floor surface. The bolt holes may be concealed by covers affixed over the bolt holes by adhesive or the like forming a smooth or recessed outer surface of the shell over the fasteners protecting the structural attachment to the floor or wall.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

FIG. 1 is a perspective view of an first embodiment of an intensive use bed.

FIG. 2 is a perspective view of the underside of the intensive use bed of FIG. 1.

FIG. 3 is a perspective view of a second embodiment of an intensive use bed.

FIG. 4 is a perspective view of the underside of the intensive use bed of FIG. 3.

FIG. 5 is a front plan view of a first embodiment of a fastener cover of FIG. 1.

FIG. 6 is a section view taken at 6-6 of FIG. 5 of the first embodiment of a fastener cover.

FIG. 7 is a perspective view of the first embodiment of a fastener cover of FIG. 5.

FIG. 8 is a front plan view of a second embodiment of a fastener cover of FIG. 3.

FIG. 9 is a section view taken at 9-9 of FIG. 8 of the second embodiment of a fastener cover.

FIG. 10 is a perspective view of the second embodiment of a fastener cover of FIG. 8.

FIG. 11 is a front top perspective view of an intensive use nightstand.

SA164

A114

US 9,661,933 B2

3

FIG. 12 is a front bottom perspective view of an intensive use nightstand.

FIG. 13 is a section view taken at 13-13 of FIG. 11.

FIG. 14 is a section view taken at section 14 of FIG. 13.

FIG. 15 is a front plan view of an intensive use three shelf wall shelf.

FIG. 16 is a section view taken at 16-16 of FIG. 15.

FIG. 17 is a perspective view of an intensive use desk.

FIG. 18 is a section view taken at 18-18 of FIG. 17.

FIG. 19 is a section view taken at 19 of FIG. 18.

FIG. 20 is a top perspective view of an intensive use footstool.

FIG. 21 is a bottom perspective view of an intensive use footstool.

FIG. 22 is a bottom plan view of the intensive use footstool.

FIG. 23 is a section view taken at 23-23 of FIG. 22.

FIG. 24 is a section view taken at 24-24 of FIG. 22.

FIG. 25 is a bottom perspective view of an intensive use Wardrobe.

FIG. 26 is a top perspective view of an intensive use wardrobe.

FIG. 27 is a front elevation view of the intensive use wardrobe of FIG. 25.

FIG. 28 is a section view taken at section 28-28 of FIG. 27.

FIG. 29 is a section view taken at 29-29 of FIG. 27.

FIG. 30 is a section view taken at 30-30 of FIG. 27.

FIG. 31 is a detail section view taken at section 31 of FIG. 30.

FIG. 32 is a detail section view taken at section 32 of FIG. 30.

FIG. 33 is a detail section view taken at section 33 of FIG. 29.

FIG. 34 is a top plan view of the intensive use wardrobe of FIG. 26.

FIG. 35 is a bottom perspective view of an intensive use table base.

FIG. 36 is a bottom perspective view of a second embodiment of an intensive use table base

FIG. 37 is a top perspective view of a third embodiment of an intensive use table base.

FIG. 38 is a top perspective view of a fourth embodiment of an intensive use table base.

FIG. 39 is a bottom plan view of the second embodiment of an intensive use table base of FIG. 36.

FIG. 40 is a perspective view of an intensive use table having a tabletop attached to a table base.

FIG. 41 is a perspective view of a first embodiment of an intensive use bookshelf.

FIG. 42 is a perspective view of a second embodiment of an intensive use bookshelf.

DETAILED DESCRIPTION OF THE INVENTION

FIGS. 1 through 4 illustrate an intensive use furniture component shown as a first and second embodiment of a bed 20. Referring to FIGS. 1 and 3, the bed 20 is rectangular having a top surface 22, a pair of end side walls 24 and a front and rear side walls 26. The bed 20 has an attachment means 27 formed in the end, rear and front walls 24, 26. The attachment means may comprise a plurality of fastener pockets 32 disposed in spaced relation on the end surfaces and front and rear surfaces for receiving fasteners (not shown) therein for extending through the shell to attach the bed 20 to the floor F (FIG. 6). The top surface 22 has a ridge

4

33 surrounding the support portion 35 forming a recessed pocket on the top of the bed. The ridge and support surface form a recessed pocket as a means for locating a mattress (not shown) as well as containing the seepage of bodily or other undesirable fluids within the ridge 33. Each of the surfaces may have a contoured or smooth non-penetrable outer shell for resisting penetration by fluids. A cover 25 may be placed over the fastener pockets 32 to protect the fasteners from the user and to prevent fluid from seeping into the pockets or contraband being placed in the fastener pocket 32. Referring to FIGS. 2 and 4, the intensive use bed 20 is shown in a bottom perspective view. The intensive use bed 20 has a bottom surface 34 forming the mounting surface for attaching the bed to a floor F (FIG. 6). The bottom surface is formed comprising a plurality of openings 36 forming a honeycomb structure 38 to improve strength and reduce the weight of the bed 20. A bottom plate 39 may be plastic welded or adhesively attached over the bottom surface 34 to cover the openings 36 to increase strength and to prevent contraband or fluid from residing in the openings, for example if the bed is not attached to the floor. The honeycomb structure 38 comprises a plurality of end support beams 47 extending between the end walls 24. The honeycomb structure 38 further comprises the plurality of edge support beams 42 extending between the front walls 26 and the rear walls forming a plurality of chambers 43 (FIG. 6) enclosed in the shell of the bed and open recesses 36 opening to the bottom surface 34.

As illustrated in FIGS. 1 to 4, the outer walls 24, 26 may have contoured ridges 37 formed in the surface to provide ridges for support of the walls and improve the aesthetic appearance of the bed. The fastener pockets 32 formed in the outer walls 24, 26 are generally scalloped shaped. A fastener hole 40 is formed in the fastener pocket 32 to accommodate a fastener such as a bolt or the like being inserted into the mounting location and attached to the floor under the bed. The fastener pockets 32 of the bed also accept tie down buckles 45 for use in psychiatric applications.

Referring to FIGS. 3 and 4, the bed 20 illustrated as a second embodiment has a pair of storage openings 28 opening into the front surface 26. The storage surface 26 has a gently sloped storage cavity floor 27 to prevent fluid collection and ease spray cleaning and drying.

Referring to FIGS. 5 and 8, the fastener pocket 32 is shown having a contoured surface 45 extending to a bolt hole 40 formed from through the mounting surface, shown as mounting flange 46. The mounting flange 46 is formed in each of the fastener pockets 32 having a top side 39 in the fastener pocket 32 adjacent the contoured surface and a bottom side 41 on the bottom surface 34. The fastener hole 40 extends from the top side 39 to the bottom side 41 and is adapted to receive a fastener such as a bolt extending through the mounting flange for attachment to a structure such as the floor F. A metallic or plastic insert 50 may be inserted in fastener hole 44 to provide additional support for the mounting flange 46 to prevent crushing the flange when the bolt is tightened. As illustrated in FIG. 5, contoured cover 49a and in FIG. 8, flat cover 49b are used to hide the bolt to prevent tampering. The cover 49a, 49b is attached by plastic welding or adhesive 51, forming a slightly recessed surface with respect to the walls 24, 26.

Referring to FIGS. 6 and 7 the contoured cover 49a has a shape for being received in fastener pocket 32 as shown in FIG. 5.

SA165

A115

US 9,661,933 B2

5

Referring to FIGS. 9 and 10, the contoured cover 49b has a generally planar shape having a contoured outer edge to fit into and cover the fastener pocket 32 as illustrated in FIG. 8.

Continuing to refer to FIGS. 5 and 8, foam 52 is injected into the generally hollow chambers of the honeycomb structure of the bed 20. A caulk channel or groove 54 is shown intermediate the outer edge 56 of the bottom surface 34 and the fastener hole 40. The caulk channel 54 extends around the entire perimeter of the lower surface. The caulk channel 54 is preferably semicircular in cross sectional shape and preferably has a radius of between 0.07 inches and 0.25 inches.

Referring to FIGS. 11-14, an alternate embodiment of an intensive use furniture component is illustrated as an intensive use nightstand 60. The intensive use nightstand 60 has a top surface 62, a pair of side surfaces 64 and a front surface 68. Front surface 68 is shown having two openings 70 for holding items such as books. Or clothes. Nightstand 60 has rounded corners 72 and a smooth outer surface on the top 62 and sides 64. The nightstand 60 may have a mounting surface on the base 78 and/or the back surface 79. The nightstand is shown having a plurality of fastener holes 76 formed in the base 78.

Referring to FIG. 13, a section view of the nightstand 60 is illustrated showing two openings 70 and a generally horizontal lower surface 80 and fastener holes 76 extending from the lower opening 70 through the base 78. An insert may be molded into fastener holes 76 to prevent crushing the base 78 when fasteners are tightened.

Referring to FIG. 14, a caulk channel 77 is illustrated on lower surface 81 of base 78 and the back surface 79. Caulk channel 77 extends around the entire perimeter of base 78 and spaced from the outer edge of the base 78, to sealingly attach the nightstand to the floor in conjunction with fasteners (not shown) extending through fastener holes 76. The caulk channel 77 is preferably formed intermediate the fastener holes 76 and the outside perimeter of the base 78. Alternately, the nightstand may be adapted having a mounting surface on the back surface 79 for attachment to a wall W. Referring to FIG. 14, a detailed view taken from view 14 of FIG. 6 is illustrated showing a caulk channel 82 on the vertical rear surface 79. The caulk channel 82 extends around the entire perimeter of the vertical rear surface 79 for sealingly attaching the nightstand 62 adjacent wall W. The nightstand 60 has gently sloped storage cavities 73 to prevent fluid collection and ease spray cleaning and drying.

Referring to FIGS. 15 and 16, a third embodiment of an intensive use furniture component is illustrated as a wall shelf 90. Wall shelf 90 is illustrated as a three-shelf 92 wall shelf, however additional configurations may also be manufactured having more or fewer shelves 92. The wall shelf 90 as a top 94, a bottom 96 and two sides 98. Each shelf 92 extends between the two sides 98 and is defined by the opening between adjacent shelves. The wall shelf 90 is preferably formed by rotational molding forming a hollow outer core 97 that is filled with structural foam 100. A mounting flange 99 is formed around the perimeter of the wall shelf 90 having a plurality of spaced fastener holes 95 for accepting threaded fasteners to attach wall shelf 90 to a wall.

Referring to FIG. 16, a section view of the wall shelf of FIG. 8 is illustrated having shelves 92 defining openings 106. The wall shelf 90 of FIGS. 15 and 16 is generally mounted vertically having a longer vertical length and shorter horizontal width. Top 94 and bottom 96 are formed having non-horizontal surfaces to prevent items from being

6

placed on top of the wall shelf 90 or to resist climbing thereon by the users. A flat rear surface 108 forms a mounting surface adapted to mount against a wall W by fasteners extending through the fastener holes 94. The shelves 92 are gently sloped and form storage cavities to prevent fluid collection and ease spray cleaning and drying.

A caulk channel 110 is formed on the mounting flange 99 for accepting a bead of caulk (not shown) to sealingly attach the wall shelf to the wall W and eliminate any gaps between the wall shelf and the wall.

Referring to FIGS. 17-19 an additional embodiment of an intensive use furniture component is shown as a desk 120. The desk 120 has an upper surface 122 having rounded corners and a pair of support legs 124 and a rear support panel 126. The support legs have a mounting surface 121 on the bottom for attaching to the floor F, the mounting surface having a perimeter surrounding bolt holes 125. A plurality of fastener openings 128 are shown formed in the lower portion of the support legs 124 having the bolt holes extending through the mounting surface to the floor with the head of the bolt adapted to be recessed in the fastener opening 128. As illustrated in FIGS. 18 and 19, the desk 120 may be rotationally molded forming a hollow shell having a core 130 which may be filled with foam 132 such as polyurethane. The upper surface 122 comprises a separately manufactured hard writing surface constructed from one of a high pressure laminate, thermo laminate, wood, plastic sheet or other planar material which may be separately manufactured and attached to the support legs 124. It is anticipated the support legs may further comprise a caulk groove on the top mounting surface 123 attached to the upper surface 122 to provide a contraband barrier between the legs and the writing surface. The writing surface may also be integrally molded with the legs 124.

Referring to FIGS. 17 and 18, the fastener openings 128 are generally scallop shaped openings in the support legs 124. The fastener openings 128 provide a recessed mounting for fasteners extending through fastener hole 134. Referring to FIG. 12, the support legs 124 are preferably formed by a molding process to create a hollow shell 130 which may be filled with the structural foam 132. A caulk channel 138 is formed on the lower surface 140 on each support leg on 24. The caulk channel extends around the perimeter of the floor surface 140 of the support leg. The caulk channel is adapted to receive the bead of caulk for sealing and attaching the desk 120 to the floor. As discussed with respect to the bed 20 above, the fastener openings may be closed with covers to conceal the bolts B (FIG. 6).

Referring to FIGS. 20-24, an alternative embodiment of an intensive use furniture component is shown as a footstool 150. The footstool 150 has a mounting flange 152 surrounding a foot support 154 having a top surface 156. Footstool 150 is secured to a floor surface 158 by fasteners 159 extending through each of a plurality of fastener holes 156 formed in the base. A foam fill hole 157 is formed in the bottom 155 to provide access for blowing in or inserting foam in the footstool hollow shell.

As illustrated in FIG. 20, the footstool 150 has a bottom 158 and a hollow interior cavity 160. The footstool 150 may be formed by rotational molding or similar process to form a substantially hollow shell 164 that may be filled with foam 166 (FIG. 15) for support and sound deadening. A central cavity 162 extending from the bottom 158 reduces the amount of material used for forming the footstool 150. Bottom 158 may also comprise a plurality of support ridges 172 adding structural integrity to the mounting flange on 52. The support ridges 172 extend from the central cavity 162 to

SA166

A116

US 9,661,933 B2

7

a position adjacent caulk channel 174. Fastener holes 156 are formed in a circumferential position with respect to the bottom 158. Caulk channel 174 is formed in the bottom 158 intermediate the fastener holes 158 and the outer perimeter 176.

Referring to FIGS. 23 and 24, foam 166 is used to support the hollow shell 164. The caulk channel 174 is disposed on the bottom 158 adjacent the outer perimeter 176 for receiving a bead of caulk 178 for sealingly attaching the footstool 152 to a floor surface F. The support ridges 172 are molded into the bottom 158 to provide structural support for the base.

Referring to FIGS. 25 to 34, an alternate embodiment of an intensive use furniture component is illustrated as a wardrobe 190 comprising cabinet 191 having a top 192, sides 194, a base 196, a back panel 197 and an optional, at least one door 198 attached to the cabinet 191. The wardrobe 190 is adapted for mounting to a floor surface or an adjacent wall surface of both. The wardrobe 190 has a plurality of fastener openings 200 formed on the top 192 for receiving fasteners to attach to an adjacent wall W. An integrally molded sloped top surface 193 is used to prevent storage and concealment of contraband and further resist climbing. The sloped surfaced could be a separate piece and attached during manufacturing or installation by fasteners or adhesive as is well known in the art of fastening plastic components together.

The hinged door illustrated in FIG. 25, preferably uses a piano style hinge 202 to create the strongest and most secure attachment to the wardrobe 190 as illustrated in FIGS. 25, 26 and 28-33. The door may also be reversible as a left or right hinge depending on the installation requirements. A tambour door option may also be considered unique in the field. The door can be molded the same as the other components in the product line or may be different such as HPL (high pressure laminate) laminate, thermoformed laminate, MDF or wood. The door is positioned to allow for complete 270 degree opening around the piano hinge as necessary to prevent overstressing the hinges as shown in FIG. 34. Metal inserts 204 (FIGS. 25, 26 and 28) are used throughout the product to attach the hinges to increase attachment strength and security. A locking means 206 may be included through integrated or separate latch features.

Referring to FIGS. 26 and 28, the clothes hanging feature 210 is molded as an integral J-bar 212 feature to prevent a traditional bar being used as a ligature support. The geometry of the J-bar 212 is preferred to be integrated into the part, but may be a separate piece fastened into the cabinet 191. A removable piece could be used as a weapon in these intended environments. The cabinet 191 has recessed pockets 214 at the upper portion having internal j-bar 212 on the lower front surface for securely supporting the hook of a standard clothes hanger. The upper portion of the wardrobe 190 is filled to resist hiding contraband or other material above the j-bar 212. A hanger recess 216 is formed between the j-bar 212 and the back 218 of the cabinet 191 to accommodate the hanger. Fastener holes 220 are formed in the back 218 and extend through the back panel 197 which is adapted to be a mounting surface for attachment to a wall W. Fasteners 224 are extending from inside the cabinet through the back panel to the wall W. Additional fasteners 224 are disposed in fastener pockets 226 on the top of the cabinet 191 as illustrated in FIG. 34. As discussed above, covers may be used to conceal the fasteners and close the fastener pockets 226. A lower shelf 230 is formed in the cabinet 191 forming a storage opening 228 between the shelf 230 and the base 196.

8

Referring to FIGS. 35-40 an intensive use table 240 is illustrated. The table 240 has a base 242a-d having a vertical wall 243 having an outer surface 244, a floor end 246 and a table top end 248. The tabletop end 248 comprises a mounting surface for attachment to a tabletop 250 (FIG. 20). The mounting surface may have a caulk groove 251 formed therein for acting as a contraband barrier 252. The table base 242a-d may have a contoured outer surface defined by ridges 260 for additional support. The ridges may be linear, parallel, curved or otherwise formed to provide structural support for the As illustrated in FIGS. 37 and 38, the top of the base has a hollow cavity 262 that may be filled with sand during installation. The tabletop 250 is attached by fasteners extending through the base 242 at bolt holes 263 and attaching to the underside 264 of the top 250. The top may be formed as the writing surface of the desk 120 described above.

Referring to FIGS. 49 and 50, an alternate embodiment of an intensive use furniture component is shown as a book shelf 270. Referring to FIG. 49, the bookshelf 272 has a base 273 adapted to support a pair of vertical ends 272 and a support leg 274. Bookshelf 270 may be formed with more or fewer legs 274 depending on its intended use and the size of the shelf 276. Ends 272 and support leg 274 are formed with rounded corners 278 to prevent supporting clothes being hung thereon, a ligature or the like. The shelf 276 is formed with a gently sloping surface angle to allow liquids to run off and facilitate cleaning. Bolt holes 280 are formed in the base 273 to attach the book shelf to the wall W. A caulk bead is formed on the base at the back opposite the shelf 276 as a contraband barrier sealing between the wall W and the base.

Referring to FIG. 50, the bookshelf 290 has upper support legs 292 supporting shelf 276 on base 273. Fastener pockets 294 are formed at the junction of the shelf 276 and base 273. Bolt holes 280 are formed through the base and disposed in the fastener pockets 294. The fastener pockets 294 are adjacent the outer edge of the base 273 facilitating closure of the fastener pocket with a cover as described above regarding the intensive use bed 20.

Referring generally to FIGS. 1 to 17, the intensive use furniture products are preferably rotationally molded in flame retardant, plastic resin with a hollow interior. In the preferred embodiment, the plastic resin may be High Density Polyethylene (HDPE) or Linear Low Density Polyethylene (LLDPE). The resin may contain additives such as flame-retardants to meet government standards. As a means to increase product strength and durability, a secondary material is used to fill the hollow cavities left during the molding process. Molding plastic could be done by rotational, blow, injection, thermo forming or compression molding where one or more pieces may be used to create the hollow cavity.

The secondary material filling the cavities of the molded products may be structural polyurethane foam selected for increased durability and sound absorption. The filler may be injected under pressure and may consist of urethane foam or other material that can conform to the irregular cavities created during the molding process. The filled, rotationally molded products are significantly more impact-resistant, with much greater load-bearing capacity, than the fiberglass predecessors. Because the products are produced from molds, the production capacity increases allow more efficient manufacturing and a product that is less expensive to ship and install.

A fire retardant additive is added to the linear low-density polyethylene and molded into the intensive use furniture products to meet fire rating standards such as the State of

SA167

A117

US 9,661,933 B2

9

California, Technical Bulletin No. 133, Flammability Test Procedure for Seating Furniture for Use in High-Risk and Public Environments.

In the molding process, nylon may be added to the plastic mix for molding the forming the substantially hollow shell to reduce de-lamination between the polyethylene walls and polyurethane foam filler.

Due to the intensive-use nature of the products, the individual components preferably include a means of securely fastening the product to a floor, wall or other desired mounting surface. In the preferred embodiment, the components are typically bolted to a structurally sound mounting surface such as a floor (bed, nightstand, stool) or a wall (Wardrobe, wall shelf, wall storage units) through molded-in bolt hole locations. Additionally each mounting position may be reinforced with metal inserts disposed in the bolt holes by insertion during the molding process or during finishing operations, to prevent crushing of the plastic surrounding the bolt holes or on a mounting flange.

To facilitate a tighter fit to the floor and eliminate gaps, each product features a semicircular shaped, hidden caulk channel on the underside of the unit, along the outer edge and preferably around the entire mounting surface forming a closed circuit of caulk adjacent the perimeter of the mounting surface. The caulk channel has a diameter profile to accommodate a standard bead of sealant such as caulk to seal any seams between the intensive use furniture and the mounting surface, the size of which may vary with the particular components. This allows the end-user to seal the floor and back edges of wall or floor mounted products to prevent concealment of contraband, prevent fluids from penetrating the surface mounting areas and facilitate cleaning of the component and surrounding areas.

The present invention has been shown and described with reference to the foregoing exemplary embodiments. It is to be understood, however, that other forms, details, and embodiments may be made without departing from the spirit and scope of the invention which is defined in the following claims.

We claim:

1. An intensive use bed comprising:
a molded outer shell having a top surface, bottom surface, a pair of end walls, a first side wall and a second side wall, a support surface on the top surface, a ridge surrounding the perimeter of the support surface;
a means for attaching the bed to a mounting surface in one of the first or second side wall; and
a storage compartment within the perimeter of the support surface, the storage compartment having a storage opening in one of the first or second side walls, and a floor spaced from the top surface, the storage compartment, the storage compartment between the top surface and the bottom surface, the storage compartment integrally molded in the outer shell to form an enclosed space.
2. The intensive use bed of claim 1, wherein the molded outer shell is hollow.
3. The intensive use bed of claim 2 further comprising a structural foam in the hollow outer shell.
4. The intensive use bed of claim 1, wherein the bottom surface further comprises a honeycomb structure having a plurality of openings whereby the structural strength of the bed is improved.

10

5. The intensive use bed of claim 1, wherein the hollow outer shell further comprises a plurality of end support beams.

6. The intensive use bed of claim 1, wherein the hollow outer shell further comprises a plurality of edge support beams.

7. The intensive use bed of claim 6, wherein the hollow outer shell further comprises a plurality of end support beams.

8. The intensive use bed of claim 1 wherein the means for attaching the bed to the mounting surface comprises a plurality of fastener holes extending through the bottom surface.

9. The intensive use bed of claim 8 further comprising a cover on the bed adjacent each fastener hole, the cover adapted to conceal the fastener holes.

10. The intensive use bed of claim 1 wherein the storage compartment further comprises a storage cavity floor having a sloping orientation whereby the sloping surface prevents fluid collection in the storage compartment.

11. The intensive use bed of claim 1 wherein a portion of the outer shell has a contoured surface.

12. An intensive use bed mounted on a floor comprising:
a hollow molded non-penetrable outer shell for resisting penetration by fluids having a top surface, bottom surface, a pair of end walls, a first side wall and a second side wall, a support surface on the top surface, a ridge surrounding the perimeter of the support surface, the bottom surface on the floor;

a mounting hole in the bottom surface, a fastener in the mounting hole, the fastener extending through the bottom surface, the fastener attached to the floor; and
a storage compartment within the perimeter of the support surface, the storage compartment under the support surface having a storage opening in a wall, a top on the top surface and a storage cavity floor, the storage compartment integrally molded in the outer shell, the storage compartment further comprises a sloping storage cavity floor opening into one of the walls and disposed between the top surface and the bottom surface.

13. The intensive use bed of claim 12 wherein the hollow molded outer shell further comprises a honeycomb interior.

14. The intensive use bed of claim 12 wherein the hollow molded outer shell further is filled with structural foam.

15. An intensive use bed mounted on a floor comprising:
a hollow molded outer shell having an interior, top surface, bottom surface, a pair of end walls, a first side wall and a second side wall, a support surface on the top surface, a ridge surrounding the perimeter of the support surface, the bottom surface spaced from the top surface and on the floor, a plurality of openings formed in the bottom surface, a mounting hole in the bottom surface, a fastener in the mounting hole, the fastener extending through the bottom surface, the fastener attached to the floor; and

a storage compartment within the perimeter of the support surface, the support surface over the storage compartment being a non-penetrable outer shell for resisting penetration by fluids the storage compartment having a single storage opening and a storage cavity floor, the storage opening formed in one of the walls, the storage cavity floor between the top surface and the bottom surface.

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(12) **EX PARTE REEXAMINATION CERTIFICATE** (12407th)
United States Patent
Karl et al.

(10) **Number:** **US 9,661,933 C1**(45) **Certificate Issued:** **Sep. 15, 2023**(54) **INTENSIVE USE BED**

(75) Inventors: **Richard B. Karl**, Naples, FL (US);
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(73) Assignee: **NORIX GROUP, INC.**, West Chicago,
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Reexamination Request:

No. 90/014,516, May 26, 2020

No. 90/014,852, Sep. 7, 2021

Reexamination Certificate for:Patent No.: **9,661,933**Issued: **May 30, 2017**Appl. No.: **13/450,508**Filed: **Apr. 19, 2012**

Certificate of Correction issued Oct. 22, 2019

Related U.S. Application Data

(63) Continuation of application No. 13/186,853, filed on
Jul. 20, 2011, now abandoned, which is a continuation
of application No. 11/868,308, filed on Oct. 5, 2007,
now Pat. No. 8,007,059.

(51) **Int. Cl.****A47C 27/14** (2006.01)**A47C 19/02** (2006.01)**A47C 31/02** (2006.01)(52) **U.S. Cl.**

CPC **A47C 27/14** (2013.01); **A47C 19/021**
(2013.01); **A47C 19/025** (2013.01); **A47C**
31/02 (2013.01)

(58) **Field of Classification Search**

None

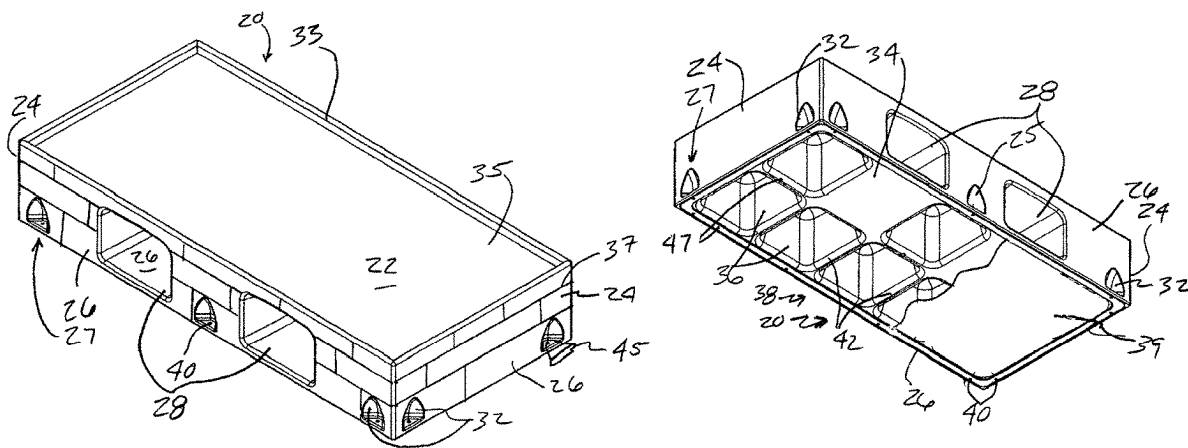
See application file for complete search history.

(56) **References Cited**

To view the complete listing of prior art documents cited
during the proceedings for Reexamination Control Numbers
90/014,516 and 90/014,852, please refer to the USPTO's
Patent Electronic System.

Primary Examiner — David O Reip(57) **ABSTRACT**

The invention is directed to a rotary molded bed having a
sleeping surface surrounded by a raised edge, storage com-
partments molded into the side of the bed and a means for
attaching a base of the bed to a floor. The rotationally
molded bottom may comprise a flat surface or a honey-
combed configuration. The hollow bed body may be filled
with structural foam to provide support. The base is attached
to a floor surface preferably having fastener openings in the
base adapted to hold fasteners recessed in the base, the
fasteners extending through a floor mount surface in the
base. The fastener openings may have covers adapted to
close the fastener openings to prevent tampering with the
fasteners.



US 9,661,933 C1

1

EX PARTE

REEXAMINATION CERTIFICATE

THE PATENT IS HEREBY AMENDED AS
INDICATED BELOW.

Matter enclosed in heavy brackets [] appeared in the patent, but has been deleted and is no longer a part of the patent; matter printed in italics indicates additions made to the patent.

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1-8** and **10-11** is confirmed.

Claims **12, 13** and **15** are determined to be patentable as amended.

Claim **14**, dependent on an amended claim, is determined to be patentable.

New claims **16-19** are added and determined to be patentable.

Claim **9** was not reexamined.

12. An intensive use bed mounted on a floor comprising: a hollow molded non-penetrable outer shell for resisting penetration by fluids having a top surface, bottom surface, a pair of end walls, a first side wall and a second side wall, a support surface on the top surface, a ridge surrounding the perimeter of the support surface, the bottom surface on the floor;

[a mounting hole in the bottom surface,] *a fastener pocket in one of the walls, a fastener hole in the fastener pocket and extending through the bottom surface, a fastener in the [mounting hole, the fastener] fastener hole and extending through the bottom surface, the fastener attached to the floor; and*

a storage compartment within the perimeter of the support surface, the storage compartment under the support surface having a storage opening in [a wall] *one of the walls, a top on the top surface and a storage cavity floor, the storage compartment integrally molded in the outer shell, the storage compartment further comprises a sloping storage cavity floor opening into one of the walls and disposed between the top surface and the bottom surface.*

13. The intensive use bed of claim **12** wherein the hollow molded outer shell further comprises a honeycomb interior defining hollow chambers.

15. An intensive use bed mounted on a floor comprising: a hollow molded outer shell having an interior, top surface, bottom surface, a pair of end walls, a first side wall and a second side wall, a support surface on the top surface, a ridge surrounding the perimeter of the support surface, the bottom surface spaced from the top surface and on the floor, a plurality of openings formed in the bottom surface, [a mounting hole in the bottom

2

surface,] *a fastener pocket in one of the walls, a fastener hole in the fastener pocket, the fastener pocket spaced from each of the plurality of openings, a fastener in the [mounting hole, the fastener] fastener hole and extending through the bottom surface, the fastener attached to the floor; and*

a storage compartment within the perimeter of the support surface, the support surface over the storage compartment being a non-penetrable outer shell for resisting penetration by fluids the storage compartment having a single storage opening and a storage cavity floor, the storage opening formed in one of the walls, the storage cavity floor between the top surface and the bottom surface.

16. *An intensive use bed comprising:*

a molded outer shell having a top surface, bottom surface, a pair of end walls, a first side wall and a second side wall connected to form a hollow cavity, the bottom surface on the first side wall and extending to the second side wall, the bottom surface further on the first end wall and extending to the second end wall, the bottom surface further comprising an outer edge, the bottom surface comprising a plurality of openings therein, each of the plurality of openings comprising a recess in the bottom surface, a support surface on the top surface, the support surface having a perimeter, a ridge on the top surface, the ridge surrounding the perimeter;

a means for attaching the bed to a mounting surface in one of the first or second side walls, the means for attaching the bed to a mounting surface spaced from each of the plurality of openings; and

a storage compartment within the perimeter of the support surface and between the top surface and the bottom surface, the storage compartment below the top surface and above the bottom surface, the storage compartment having a storage opening in one of the first or second side walls, and a floor spaced from the top surface, the storage compartment integrally molded in the outer shell to form an enclosed space.

17. *The intensive use bed of claim 16, wherein the plurality of openings in the bottom surface comprise a honeycomb structure whereby the structural strength of the bed is improved.*

18. *The intensive use bed of claim 16, further comprising a plurality of end support beams and a plurality of edge support beams, the end support beams in the outer shell, the end support beams extending between the pair of end walls, the edge support beams in the outer shell.*

19. *The intensive use bed of claim 16, wherein the means for attaching the bed to the mounting surface comprises a plurality of fastener pockets, each fastener pocket comprising a mounting hole in the bottom surface, the fastener holes spaced from the recesses in the bottom surface.*

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|-------------------------|-------------|----------------------|---------------------|------------------|
| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 90/014,516 | 05/26/2020 | 9661933 | CTU0002 | 1089 |
| 50981 | 7590 | 01/05/2023 | EXAMINER | |
| Applied Patent Services | | | REIP, DAVID OWEN | |
| PO BOX 231 | | | | |
| Itasca, IL 60143 | | | | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3993 | |
| | | | MAIL DATE | DELIVERY MODE |
| | | | 01/05/2023 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



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***EX PARTE* REEXAMINATION COMMUNICATION TRANSMITTAL FORM**

REEXAMINATION CONTROL NO. 90/014,516 .

PATENT UNDER REEXAMINATION 9661933 .

ART UNIT 3993 .

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

SA172

A122

Office Action in Ex Parte ReexaminationControl No.
90/014,516Patent Under Reexamination
9661933Examiner
David O ReipArt Unit
3993AIA (FITF) Status
No**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

- a. ☒ Responsive to the communication(s) filed on 03 August 2021.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

- b. ☒ This action is made FINAL.

- c. ☐ A statement under 37 CFR 1.530 has not been received from the patent owner.

A shortened statutory period for response to this action is set to expire 2 month(s) from the mailing date of this letter. Failure to respond within the period for response will result in termination of the proceeding and issuance of an *ex parte* reexamination certificate in accordance with this action. 37 CFR 1.550(d). **EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.550(c)**. If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892. 3. ☐ Interview Summary, PTO-474.
2. ☐ Information Disclosure Statement, PTO/SB/08. 4. ☐ _____.

Part II SUMMARY OF ACTION

- 1a. ☒ Claims 1-8 and 10-19 are subject to reexamination.
1b. ☒ Claims 9 are not subject to reexamination.
2. ☐ Claims _____ have been canceled in the present reexamination proceeding.
3. ☒ Claims 16-19 are patentable and/or confirmed.
4. ☒ Claims 1-8 and 10-15 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ The drawings, filed on _____ are acceptable.
7. ☐ The proposed drawing correction, filed on _____ has been (7a) ☐ approved (7b) ☐ disapproved.
8. ☐ Acknowledgment is made of the priority claim under 35 U.S.C. 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the certified copies have
1 ☐ been received.
2 ☐ not been received.
3 ☐ been filed in Application No. _____.
4 ☐ been filed in reexamination Control No. _____.
5 ☐ been received by the International Bureau in PCT application No. _____.

* See the attached detailed Office action for a list of the certified copies not received.

9. ☐ Since the proceeding appears to be in condition for issuance of an *ex parte* reexamination certificate except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte* Quayle, 1935 C.D. 11, 453 O.G. 213.
10. ☐ Other: _____

cc: Requester (if third party requester)

U.S. Patent and Trademark Office
PTOL-466 (Rev. 08-13)

Office Action in Ex Parte Reexamination

Part of Paper No. 20221220

SA173

A123

Copied from 90014516 on 01/06/2023

Control Numbers: 90/014,516 and 90/014,852, merged
Art Unit: 3993

Page 2

DETAILED ACTION

This office action is in response to the Patent Owner's "Housekeeping Amendment" filed 10/14/2022. The 10/14/2022 "Housekeeping Amendment" was filed in response to the 09/13/2022 "**DECISION *SUA SPONTE* MERGING PROCEEDINGS** [37 CFR § 1.565(c)]" and the 05/03/2021 Non-final Office action.

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Claim Rejections - 35 USC § 112

The following is a quotation of 35 U.S.C. 112(b):

(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8, 10 and 11 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor (or for applications subject to pre-AIA 35 U.S.C. 112, the applicant), regards as the invention.

Original patent claim 1 has a double inclusion of the words "the storage compartment" at column 9, lines 52-53 (approx.). See below.

**SA174
A124**

Control Numbers: 90/014,516 and 90/014,852, merged
Art Unit: 3993

Page 3

1. An intensive use bed comprising:
a molded outer shell having a top surface, bottom surface,
a pair of end walls, a first side wall and a second side
wall, a support surface on the top surface, a ridge 45
surrounding the perimeter of the support surface;
a means for attaching the bed to a mounting surface in one
of the first or second side wall; and
a storage compartment within the perimeter of the support
surface, the storage compartment having a storage 50
opening in one of the first or second side walls, and a
floor spaced from the top surface, the storage compart-
ment, the storage compartment between the top surface
and the bottom surface, the storage compartment inte-
grally molded in the outer shell to form an enclosed 55
space.

Claim 1 in the claim set filed with the 10/14/2022 "Housekeeping Amendment" has the
parenthetical "(Original)," but has an explicit amendment deleting a comma using strike-through (which is
improper per 37 CFR 1.530(d)(2) and (f) requiring deletions to be by brackets, not strike-through). See
circle below.

1. (Original)An intensive use bed comprising:

a molded outer shell having a top surface, bottom surface, a pair of end walls, a first side wall
and a second side wall, a support surface on the top surface, a ridge surrounding the perimeter
of the support surface;

a means for attaching the bed to a mounting surface in one of the first or second side wall; and

a storage compartment within the perimeter of the support surface, the storage compartment
having a storage opening in one of the first or second side walls, and a floor spaced from the top
surface, the storage compartment between the top surface and the bottom surface the storage
compartment, the storage compartment integrally molded in the outer shell to form an enclosed
space.

In addition, in the claim set filed with the 10/14/2022 "Housekeeping Amendment," claim 1
appears to have inadvertently had "the storage compartment" deleted from line 8 prior to the striken-

SA175

A125

Control Numbers: 90/014,516 and 90/014,852, merged
 Art Unit: 3993

Page 4

through comma and inadvertently inserted after the third occurrence of the word "surface" in line 8 and continuing onto line 9. Thus, claim 1 is NOT original and has been amended. Accordingly, since claim 1 has been amended, the examiner can properly set forth a 112 rejection based upon amended claim language.

With regard to claim 1, lines 7-10, the language "and a floor spaced from the top surface, the storage compartment between the top surface and the bottom surface the storage compartment, the storage compartment integrally molded in the outer shell to form an enclosed space" is unclear.

It is noted that claim 1's status identifier indicates "(Original)," but the cited language is not original claim language.

In additional, there appears to be a word missing between "the bottom surface" and "the storage compartment." The phrase "the storage compartment between the top surface and the bottom surface the storage compartment" does NOT make grammatical sense and it is not clear what Patent Owner intends by inserting "the storage compartment" after "the bottom surface" in line 8.

It is suggested that the last paragraph of claim 1 as in the 10/14/2022 claim set might make more sense if amended as follows:

--a storage compartment within the perimeter of the support surface of the outer shell, the storage compartment having a storage opening in one of the first or second side walls of the outer shell, [and] the storage compartment having a floor spaced from the top surface of the outer shell, [the storage compartment,] the storage compartment being between the top surface and the bottom surface of the outer shell, and the storage compartment integrally molded in the outer shell to form an enclosed space.--

Claim Rejections - 35 USC § 103

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

SA176
 A126

Control Numbers: 90/014,516 and 90/014,852, merged
Art Unit: 3993

Page 5

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under pre-AIA 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of pre-AIA 35 U.S.C. 103(c) and potential pre-AIA 35 U.S.C. 102(e), (f) or (g) prior art under pre-AIA 35 U.S.C. 103(a).

Claims 12 and 15 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over the GLASSPEC Institutional Furniture catalog (Exhibit D) (hereinafter "Glasspec").

As to claim 12, pages 3-5 of Glasspec (see image and text below captured from the catalog) teaches an intensive use bed comprising:

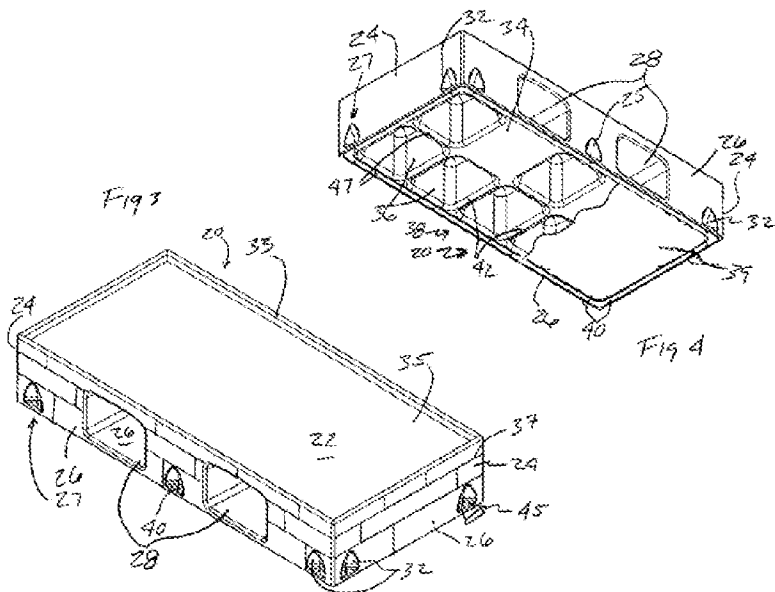
- *"A hollow molded **non-penetrable** outer shell for resisting penetration by fluids"* – the fiberglass construction material is inherently non-penetrable by fluids. Note highlighted text

SA177
A127

“lightweight final molded part” and “wall thickness fluctuates from 1/8” up to 3/4”” renders obvious that the bed is a hollow “shell” as opposed to being a solid -- **having:**

- **a top surface** -- self-evident from the image,
- **a bottom surface** -- broad recitation of “bottom surface” includes at least the bottom edges of the vertical side and end walls, and the bottom surfaces of the mounting flanges extending therefrom, that rest against the floor,
- **a pair of end walls, a first side wall and a second side wall** -- although only the right side end wall and the front (first) side walls are seen, note highlighted text “enclosed sides” which renders obvious the presence of a left side end wall and a back (second) side wall,
- **a support surface on the top surface, a ridge surrounding the perimeter of the support surface** -- self-evident from image,
- **the bottom surface on the floor** – in reference to “bottom surface” as defined above, the bottom surface is on the floor.
- **a mounting hole in the bottom surface, a fastener in the mounting hole, the fastener extending through the bottom surface, the fastener attached to the floor** – while the image of the bed in a corner mounting position lacks the resolution to determine whether there are fasteners in the fastener holes in the first side and right side floor flanges, the presence of fasteners in these holes is likely inherent or would be obvious, providing the maximum amount of mounting security.
- **A storage compartment within the perimeter of the support surface** (self-evident from the image), **the storage compartment under the support surface having:**
 - **a storage opening in a wall** – the storage openings are in the first side wall,
 - **a top on the top surface** – this limitation is not well understood, as the written specification is silent as to the storage compartment having a “top on the top surface” as recited. As shown in Figs. 3 and 4 of the ‘933 patent, each of storage compartments 28

appear to comprise a floor surface, side surfaces, and a top surface. However, the drawings show that the top surface of each storage compartment is located **under** top surface 22 as opposed to being **on** top surface 22. Therefore, inasmuch as the top surface of the storage compartments 28 are “on” the top surface 22 of bed 20, the top surface of the storage compartments of the Glasspec bed are “on” the top surface of the Glasspec bed.



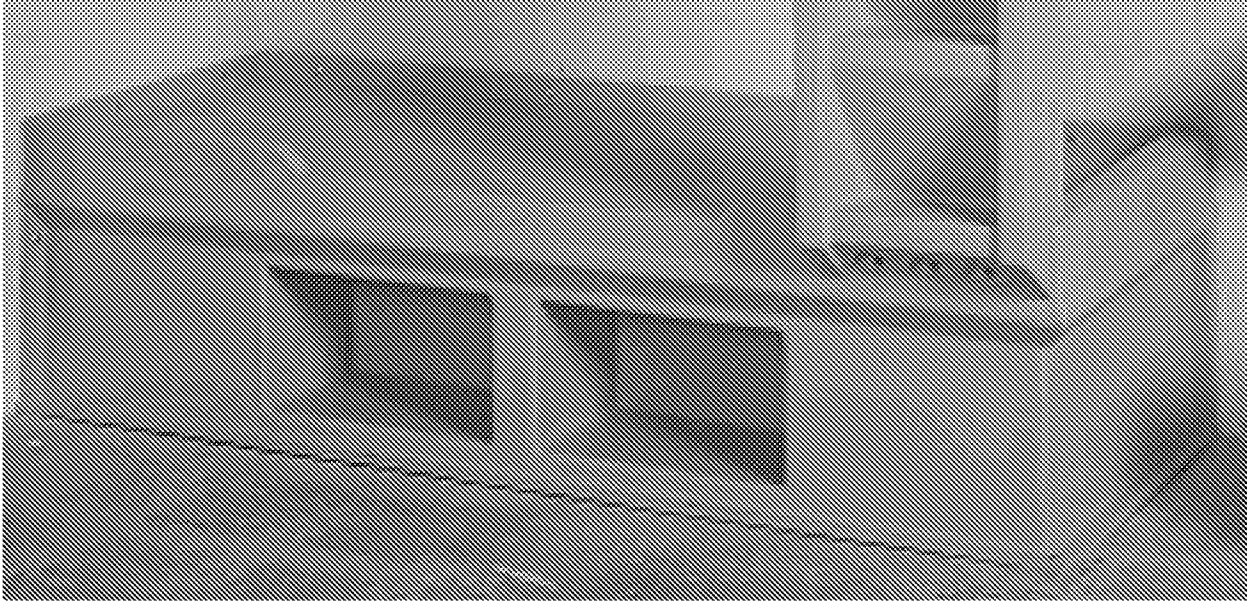
- **and a storage cavity floor** – self-evident from the image,
- **the storage compartment integrally molded in the outer shell** – the bed is disclosed as “one piece construction,” thus the storage compartment is integrally molded in the outer shell,
- **the storage compartment further comprises a sloping storage cavity floor opening into one of the walls**– Glasspec is silent as to whether the floors of the storage compartments slope. However, a sloping floor, i.e. higher in the rear, lower in the front, is likely inherent or would be obvious, e.g. self-draining following cleaning. It is further self-evident from the image that the storage cavity floor opens into one of the walls.

- ***and disposed between the top surface and the bottom surface*** -- the '933 patent specification defines the "bottom surface" of bed 20 as broadly encompassing not only the bottom surfaces of the plate elements 34, but also the bottom surfaces of the end support beams 47 and edge support beams 42 that comprise the edges of openings 36: "*The intensive use bed 20 has a bottom surface 34 forming the mounting surface for attaching the bed to a floor F (FIG. 6). The bottom surface is formed comprising a plurality of openings 36 forming a honeycomb structure 38 to improve strength and reduce the weight of the bed 20...the honeycomb structure 38 comprises a plurality of end support beams 47 extending between the end walls 24. The honeycomb structure 38 further comprises the plurality of edge support beams 42 extending between the front walls 26 and the rear walls forming a plurality of chambers 43 (FIG. 6) enclosed in the shell of the bed and open recesses 36 opening to the bottom surface 34*" (col. 4, lines 12-18 and 22-29). Therefore, the "bottom surface" of the bed 20 of the '933 includes all lowermost surfaces, including the plate elements 34 and edge elements comprising the perimeter edges and edges of openings 36 which form the honeycomb structure 38. As cited above, "...*and open recesses 36 opening to the bottom surface 34*" is specifically noted, which therefore broadly defines "bottom surface" as a plane defined by the lowermost surfaces as discussed above. Therefore, inasmuch as the storage compartments of '933 patent bed 20 are disposed between the top surface and the bottom surface, the storage compartments of the Glasspec bed are disposed between the top surface and the bottom surface.

As to claim 15, all the limitations as recited in claim 15 have been addressed above in the analysis for claim 12, with the exception of the limitation, "a plurality of openings formed in the bottom surface." Any of the plurality of bolt holes in the bottom flanges of the Glasspec bed comprise "a plurality of openings formed in the bottom surface" as recited.

Control Numbers: 90/014,516 and 90/014,852, merged
Art Unit: 3993

Page 9



Particular attention has been given to suicide prevention by incorporating sloping surfaces, enclosed sides, rounded corners and one piece construction. Easy to install, easy to maintain, easy to search, built to last.

At GLASSPEC, fiberglass product manufacturing is based on the use of a liquid material, typically a thermosetting polyester resin (vinylesters, urethanes and epoxies are also commonly used) in combination with randomly chopped, continuous strand and/or woven glass fibers.

A chemical reaction initiated in the resin by means of a catalytic agent causes hardening to a strong lightweight final molded part, in which the resin serves as a substrate and the fibers as the reinforcement.

Depending on the characteristics looked for in the final product, wall thickness fluctuates from 1/8" up to 3/4", and different ratios of glass to resin, varying loading of additives into the resin for fire retardant and other purposes, as well as different types of glass fibers are used.

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

SA181
A131

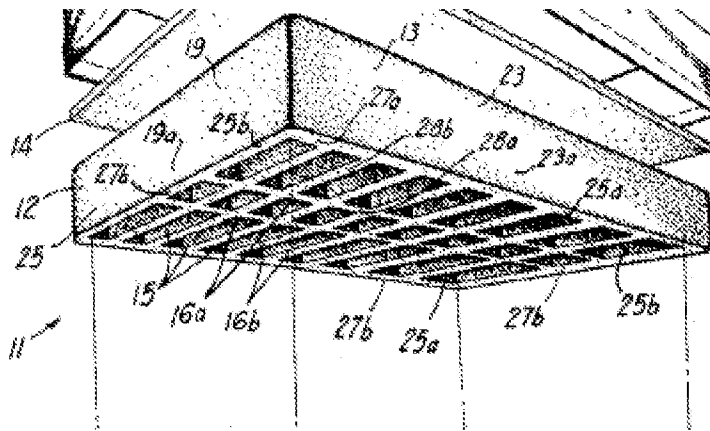
Control Numbers: 90/014,516 and 90/014,852, merged
Art Unit: 3993

Page 10

Claims 13 and 14 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Glasspec in view of U.S. Pat. No. 3,973,281 to Davis et al (hereinafter "Davis").

As previously discussed, Glasspec alone renders obvious claim 12. However, Glasspec does not show a bed having the additional structural features of claims 13, i.e. "structural foam" (claim 14), and "a honeycomb interior defining hollow chambers" (amended cl. 13).

Davis teaches a bed unit 11 having a honeycomb-like structure comprising EFS foam, a plurality of end support beams 25b and a plurality of edge support beams 25a.



Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the Glasspec bed, which comprises a substantially hollow fiberglass shell, to have some type of additional internal strengthening element(s), such as an EPS foam core comprising lateral and transverse beams as taught by Davis, for reasons as discussed below.

"Expandable polystyrene (EPS) is a rigid cellular form of polystyrene with good thermal insulation and shock absorbing properties, high compressive strength, very low weight and resistance to moisture. These properties of EPS bring many benefits, in particular to the construction and packaging industries."

-- <https://www.icis.com/explore/resources/news/2007/11/05/9076008/expandable-polystyrene-eps-uses-and-market-data/#?text=Large%20quantities%20are%20used%20lo.of%20EPS%20is%20in%20packaging>.

SA182

A132

Control Numbers: 90/014,516 and 90/014,852, merged
Art Unit: 3993

Page 11

Allowable Subject Matter

Claims 16-19 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Claim 16 is allowed because the prior art of record fails to disclose or suggest an intensive use bed having all the limitations as recited in claim 16, including “a means for attaching the bed to a mounting surface in one of the first or second side wall and in the bottom surface.” The recitation “a means for attaching the bed to a mounting surface in one of the first or second side wall and in the bottom surface” has been interpreted under 35 USC 112(f) “means plus function.” Accordingly, the specification identifies a plurality of fastener pockets 32 as the corresponding structure.

Claims 17-19 ultimately depend from claim 16 and are therefore allowable for the same reason as claim 16.

Claims Not Subject to Reexamination

Claim 9 is not subject to reexamination.

Response to Arguments

Patent Owner's arguments filed 08/03/21 and 10/14/2022 have been fully considered and are persuasive for claim 1, but are not persuasive for claims 12 and 15. The examiner's responses to arguments have been incorporated into the claim rejection analysis as detailed above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

A shortened statutory period for response to this action is set to expire two (2) months from the mailing date of this action.

SA183
A133

Control Numbers: 90/014,516 and 90/014,852, merged
Art Unit: 3993

Page 12

Extensions of time under 37 CFR 1.136(a) do not apply in reexamination proceedings. The provisions of 37 CFR 1.136 apply only to “an applicant” and not to parties in a reexamination proceeding. Further, in 35 U.S.C. 305 and in 37 CFR 1.550(a), it is required that reexamination proceedings “will be conducted with special dispatch within the Office.”

Extensions of time in reexamination proceedings are provided for in 37 CFR 1.550(c). A request for extension of time must specify the requested period of extension and it must be accompanied by the petition fee set forth in 37 CFR 1.17(g). Any request for an extension in a third party requested ex parte reexamination must be filed on or before the day on which action by the patent owner is due, and the mere filing of a request will not affect any extension of time. A request for an extension of time in a third party requested ex parte reexamination will be granted only for sufficient cause, and for a reasonable time specified. Any request for extension in a patent owner requested ex parte reexamination (including reexamination ordered under 35 U.S.C. 257) for up to two months from the time period set in the Office action must be filed no later than two months from the expiration of the time period set in the Office action. A request for an extension in a patent owner requested ex parte reexamination for more than two months from the time period set in the Office action must be filed on or before the day on which action by the patent owner is due, and the mere filing of a request for an extension for more than two months will not affect the extension. The time for taking action in a patent owner requested ex parte reexamination will not be extended for more than two months from the time period set in the Office action in the absence of sufficient cause or for more than a reasonable time.

The filing of a timely first response to this final rejection will be construed as including a request to extend the shortened statutory period for an additional two months. In no event, however, will the statutory period for response expire later than SIX MONTHS from the mailing date of the final action. See MPEP § 2265.

All correspondence relating to this *ex parte* reexamination proceeding should be directed as follows:

**SA184
A134**

Control Numbers: 90/014,516 and 90/014,852, merged
Art Unit: 3993

Page 13

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By FAX: (571) 273-9900
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Any inquiry concerning this communication or earlier communications from the Reexamination Legal Advisor or Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit (CRU) at telephone number: 571-272-7705. The CRU's fax number is: 571-273-9900.

/DAVID O REIP/
Patent Reexamination Specialist, Art Unit 3993

Conferees: /GKD/
Glenn K Dawson
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Supervisory Patent Reexamination Specialist, Art Unit 3993

SA185
A135



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| | | | | |
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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 90/014,516 & 90/014,852 | 05/26/2020 | 9661933 | CTU0002 | 1089 |
| 50981 | 7590 | 08/04/2023 | EXAMINER | |
| Applied Patent Services | | | REIP, DAVID OWEN | |
| PO BOX 231 | | | ART UNIT | |
| Itasca, IL 60143 | | | PAPER NUMBER | |
| | | | 3993 | |
| | | | MAIL DATE | |
| | | | DELIVERY MODE | |
| | | | 08/04/2023 | |
| | | | PAPER | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



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1750 W. OGDEN AVE., #2405
NAPERVILLE, IL 60567

***EX PARTE* REEXAMINATION COMMUNICATION TRANSMITTAL FORM**

REEXAMINATION CONTROL NO. 90/014,516 and 90014852, merged .

PATENT UNDER REEXAMINATION 9661933 .

ART UNIT 3993 .

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

/DAVID O REIP/

SA187

A137

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|---|--|--|-------------------------|
| Notice of Intent to Issue Ex Parte Reexamination Certificate | Control No. 90/014,516 & 90/014,852, merged | Patent Under Reexamination 9661933 | |
| | Examiner David O Reip | Art Unit 3993 | AIA Status No |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

1. ☒ Prosecution on the merits is (or remains) closed in this *ex parte* reexamination proceeding. This proceeding is subject to reopening at the initiative of the Office or upon petition. *Cf.* 37 CFR 1.313(a). A Certificate will be issued in view of
 - (a) ☒ Patent owner's communication(s) filed: 26 July 2023.
 - (b) ☐ Patent owner's failure to file an appropriate timely response to the Office action mailed: ____.
 - (c) ☐ Patent owner's failure to timely file an Appeal Brief (37 CFR 41.31).
 - (d) ☐ The decision on appeal by the ☐ Board of Patent Appeals and Interferences ☐ Court dated ____
 - (e) ☐ Other: ____.
2. The Reexamination Certificate will indicate the following:
 - (a) Change in the Specification: ☐ Yes ☒ No
 - (b) Change in the Drawing(s): ☐ Yes ☒ No
 - (c) Status of the Claim(s):
 - (1) Patent claim(s) confirmed: 1-8 and 10-11.
 - (2) Patent claim(s) amended (including dependent on amended claim(s)): 12-15
 - (3) Patent claim(s) canceled: ____.
 - (4) Newly presented claim(s) patentable: 16-19.
 - (5) Newly presented canceled claims: ____.
 - (6) Patent claim(s) ☐ previously ☐ currently disclaimed: ____
 - (7) Patent claim(s) not subject to reexamination: 9.
3. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
4. ☒ Note the attached statement of reasons for patentability and/or confirmation. Any comments considered necessary by patent owner regarding reasons for patentability and/or confirmation must be submitted promptly to avoid processing delays. Such submission(s) should be labeled: "Comments On Statement of Reasons for Patentability and/or Confirmation."
5. ☐ Note attached NOTICE OF REFERENCES CITED (PTO-892).
6. ☐ Note attached LIST OF REFERENCES CITED (PTO/SB/08 or PTO/SB/08 substitute).
7. ☐ The drawing correction request filed on ____ is: ☐ approved ☐ disapproved.
8. ☐ Acknowledgment is made of the priority claim under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the certified copies have
 - ☐ been received.
 - ☐ not been received.
 - ☐ been filed in Application No. ____.
 - ☐ been filed in reexamination Control No. ____.
 - ☐ been received by the International Bureau in PCT Application No. ____.

* Certified copies not received: ____.
9. ☒ Note attached Examiner's Amendment.
10. ☐ Note attached Interview Summary (PTO-474).
11. ☐ Other: ____.

All correspondence relating to this reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Office action.

| | |
|---|--|
| /DAVID O REIP/ Primary Examiner, Art Unit 3993 | |
|---|--|

cc: Requester (if third party requester)

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone call with Mr. James Palmatier on 7/27/2023.

16. (New) An intensive use bed comprising:

a molded outer shell having a top surface, bottom surface, a pair of end walls, a first side wall and a second side wall connected to form a hollow cavity, the bottom surface on the first side wall and extending to the second side wall, the bottom surface further on the first end wall and extending to the second end wall, the bottom surface further comprising an outer edge, the bottom surface comprising a plurality of openings therein, each of the plurality of openings comprising a recess in the bottom surface, a support surface on the top surface, the support surface having a perimeter, a ridge on the top surface, the ridge surrounding the perimeter:

a means for attaching the bed to a mounting surface in one of the first or second side walls, the means for attaching the bed to a mounting surface spaced from each of the plurality of openings: and

a storage compartment within the perimeter of the support surface and between the top surface and the bottom surface, the storage compartment below the top surface and above the bottom surface, the storage compartment having a storage opening in one of the first or second

Control Numbers: 90/014,516 and 90/014,852, merged
Art Unit: 3993

Page 3

side walls, and a floor spaced from the top surface, the storage compartment integrally molded in the outer shell to form an enclosed space.

Note: The examiner's amendment above amends the word "wall" to -- walls -- in line 10.

STATEMENT OF REASONS FOR PATENTABILITY AND/OR CONFIRMATION

The following is an examiner's statement of reasons for patentability and/or confirmation of the claims found patentable in this reexamination proceeding:

Claim 1 is confirmed because the prior art of record fails to disclose or suggest an intensive use bed having all the limitations as recited in claim 1, including, *"a means for attaching the bed to a mounting surface in one of the first or second side wall."*

Claims 2-8, 10 and 11 ultimately depend from claim 1 and are therefore confirmed for the same reason as claim 1.

Claim 12 is patentable as amended because the prior art of record fails to disclose or suggest an intensive use bed having all the limitations as recited in claim 12, including, *"a fastener pocket in one of the walls, a fastener hole in the fastener pocket and extending through the bottom surface, a fastener in the fastener hole and extending through the bottom surface, the fastener attached to the floor."*

Claims 13 and 14 depend from claim 12 and are therefore patentable for the same reason as claim 12.

Claim 15 is patentable as amended because the prior art of record fails to disclose or suggest an intensive use bed having all the limitations as recited in claim 12, including, *"a fastener pocket in one of the walls, a fastener hole in the fastener pocket, the fastener pocket spaced from each of the plurality of openings, a fastener in the fastener hole and extending through the bottom surface, the fastener attached to the floor."*

Control Numbers: 90/014,516 and 90/014,852, merged
Art Unit: 3993

Page 4

Claim 16 is patentable because the prior art of record fails to disclose or suggest an intensive use bed having all the limitations as recited in claim 16, including, "*a means for attaching the bed to a mounting surface in one of the first or second side walls, the means for attaching the bed to a mounting surface spaced from each of the plurality of openings.*"

Claims 17-19 depend from claim 16 and are therefore patentable for the same reason as claim 16.

Claim 9 was not subject to reexamination.

Any comments considered necessary by PATENT OWNER regarding the above statement must be submitted promptly to avoid processing delays. Such submission by the patent owner should be labeled: "Comments on Statement of Reasons for Patentability and/or Confirmation" and will be placed in the reexamination file.

All correspondence relating to this *ex parte* reexamination proceeding should be directed as follows:

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SA191
A141

Control Numbers: 90/014,516 and 90/014,852, merged
Art Unit: 3993

Page 5

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Any inquiry concerning this communication or earlier communications from the Reexamination Legal Advisor or Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit (CRU) at telephone number: 571-272-7705. The CRU's fax number is: 571-273-9900.

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 90/014,485 | 04/04/2020 | 10507150 | CTU0001 | 1462 |
| 50981 | 7590 | 02/22/2021 | EXAMINER | |
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| Itasca, IL 60143 | | | | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3993 | |
| | | | MAIL DATE | DELIVERY MODE |
| | | | 02/22/2021 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



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(THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS)

Steven M. Evans
Chicago IP Law
1750 W. Ogden Ave. #2405
Naperville, IL 60567

***EX PARTE* REEXAMINATION COMMUNICATION TRANSMITTAL FORM**

REEXAMINATION CONTROL NO. 90/014,485.

PATENT UNDER REEXAMINATION 10507150.

ART UNIT 3993.

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

Office Action in Ex Parte ReexaminationControl No.
90/014,485Patent Under Reexamination
10507150Examiner
PATRICIA L ENGLEArt Unit
3993AIA (FITF) Status
Yes**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

- a. ☒ Responsive to the communication(s) filed on 04 January 2021.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

b. ☐ This action is made FINAL.

c. ☐ A statement under 37 CFR 1.530 has not been received from the patent owner.

A shortened statutory period for response to this action is set to expire 2 month(s) from the mailing date of this letter. Failure to respond within the period for response will result in termination of the proceeding and issuance of an *ex parte* reexamination certificate in accordance with this action. 37 CFR 1.550(d). **EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.550(c)**. If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892. 3. ☐ Interview Summary, PTO-474.
2. ☐ Information Disclosure Statement, PTO/SB/08. 4. ☐ _____.

Part II SUMMARY OF ACTION

- 1a. ☒ Claims 1-18 are subject to reexamination.
1b. ☐ Claims _____ are not subject to reexamination.
2. ☐ Claims _____ have been canceled in the present reexamination proceeding.
3. ☐ Claims _____ are patentable and/or confirmed.
4. ☒ Claims 1 and 4-18 are rejected.
5. ☐ Claims 2-3 are objected to.
6. ☐ The drawings, filed on _____ are acceptable.
7. ☐ The proposed drawing correction, filed on _____ has been (7a) ☐ approved (7b) ☐ disapproved.
8. ☐ Acknowledgment is made of the priority claim under 35 U.S.C. 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the certified copies have
1 ☐ been received.
2 ☐ not been received.
3 ☐ been filed in Application No. _____.
4 ☐ been filed in reexamination Control No. _____.
5 ☐ been received by the International Bureau in PCT application No. _____.

* See the attached detailed Office action for a list of the certified copies not received.

9. ☐ Since the proceeding appears to be in condition for issuance of an *ex parte* reexamination certificate except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte* Quayle, 1935 C.D. 11, 453 O.G. 213.
10. ☐ Other: _____

cc: Requester (if third party requester)

U.S. Patent and Trademark Office
PTOL-466 (Rev. 08-13)

Office Action in Ex Parte Reexamination

Part of Paper No. 20210209

**SA195
A145**

Application/Control Number: 90/014,485
Art Unit: 3993

Page 2

DETAILED ACTION

This office action is in response to the Patent Owner Statement of June 22, 2020 and the 3rd Party Requester's Reply of August 20, 2020.

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Amendments

The claim amendments of January 4, 2021 do not comply with 37 CFR 1.530(d)-(j)). 37 CFR 1.530(f)(1) "The matter to be omitted by the reexamination proceeding must be enclosed in brackets". 37 CFR 1.530(f)(2) states "The matter to be added by the reexamination proceeding must be underlined". The Applicant is also reminded that 37 CFR 1.530(i) states that all amendments must be made relative to the patent.

The deletions in claim 6 are shown with strikethroughs. They should be shown with single brackets.

The Applicant argues at p. 2 that the invention is a fully enclosed shell. The claim does not require a fully enclosed shell. Further, claim 6 states that the bottom is removable, so claim 1 is not required to be fully enclosed. The Applicant also argues that the claim requires a support ridge in a side wall and an end wall. The Examiner has provided an annotated image of Glasspec which shows the support ridge.

Applicant argues that Glasspec does not disclose a bottom. The Examiner does not allege that Glasspec forms a fully enclosed bottom. However, it would have been inherent that there is

a bottom surface which engages with the floor. This surface would be parallel to the top surface to allow the bed to be level. Further, the combination of Glasspec Free Standing Bed/Closed Sides and Bed with Side Bars would be a bed with a bottom surface with flanges. It is further noted that Glasspec at p. 8 offers and enclosed bottom variant of the Free Standing Bed.

The Applicant argues that because Glasspec shows contours on the walls, it is not a vertical wall. The claims state “generally vertical”. Under the broadest reasonable interpretation of the claims, the walls of Glasspec are considered to be “generally vertical”. The contour does not render the walls as not generally vertical.

Claim Rejections - 35 USC § 112

The following is a quotation of 35 U.S.C. 112(b):

(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 18 is rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor (or for applications subject to pre-AIA 35 U.S.C. 112, the applicant), regards as the invention.

In line 6, the term “each of the first and second end walls on the top”. What does the term “on the top” mean? What are the first and second end walls on top of?

Application/Control Number: 90/014,485
Art Unit: 3993

Page 4

Claim Rejections - 35 USC §§ 102, 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.

(a)(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

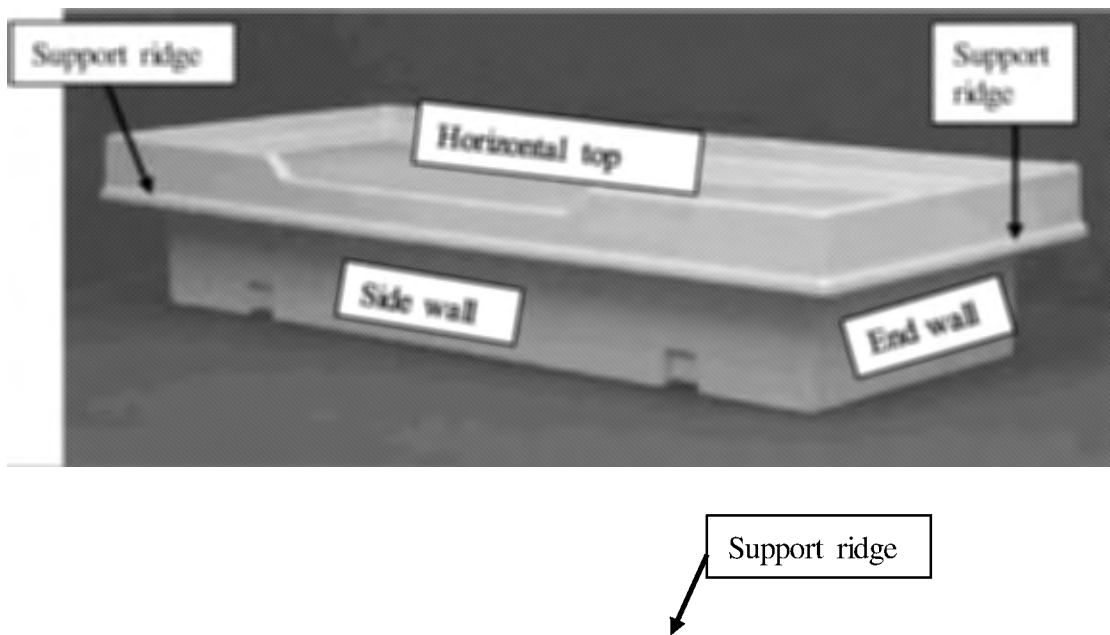
The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

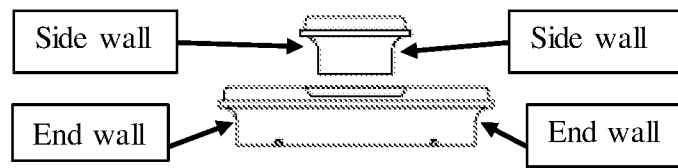
A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 5, 7-13, 15 and 16 are rejected under 35 U.S.C. 103 as being unpatentable over Glasspec.

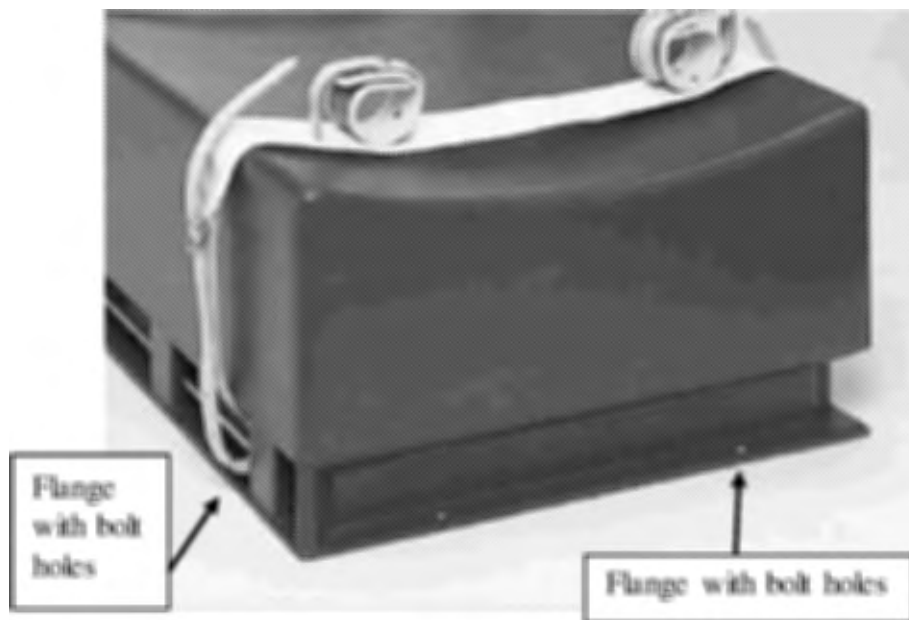
Regarding claim 1, Glasspec discloses an intensive use bed (Duramax® free standing bed/closed sides) comprising a molded, non-penetrable outer shell (p. 3, “a strong lightweight final molded part”) having a generally horizontal top (see below), a bottom (p. 8, “enclosed bottom), a pair of generally vertical end walls (see below), a generally vertical first side wall (see below), a generally vertical second side wall (not visible) and a plurality of mounting flanges (p. 8, “free-standing closed sides bed borrows from both the corner wall-mounted bed and the four-legged models” and “it can be weighted or bolted to the floor”), each of the generally vertical end walls on the top (the end walls extend up from the bottom and are therefore considered to be on the top), the first generally vertical side wall on the top (the vertical side wall extends from

the bottom and is therefore considered to be on the top), the first side wall attached to and between the pair of end walls whereby the end walls are in spaced relation and substantially parallel to each other (see below), the second generally vertical side wall on the top (the vertical side wall extends from the bottom and is therefore considered to be on the top), the second side wall attached to and between the pair of end walls (see below), the bottom on the pair of generally vertical end walls, the bottom attached to the first and second side walls whereby the top and bottom are in spaced relation and substantially parallel to each other (p. 8), a first end support ridge (see below) in the first one of the pair of end walls, a first side support ridge disposed in the first side wall (see below), a recessed pocket in the top (ledge around horizontal top creates the recessed pocket), a recessed pocket in the bottom (Glasspec states at p. 8 that the free standing bed is “molded in one piece”, therefore it considered to be hollow and the hollow interior is the recess in the bottom).





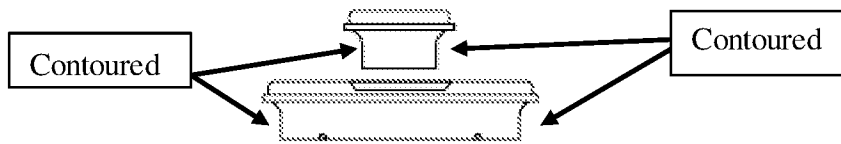
While Glasspec discloses that the free-standing bed borrows from the other beds, p. 8 of the catalogue does not specifically disclose the flanges for bolting bed to the floor. The bed on p. 7, discloses a recess in the end and side walls with flanges and bolt holes (see below). Based on the disclosure of Glasspec to borrow features from the other beds, it would have been obvious to one of ordinary skill in the art to modify the free-standing bed to include flanges along the bottom and recesses in the walls to allow the bed to be bolted to the floor.



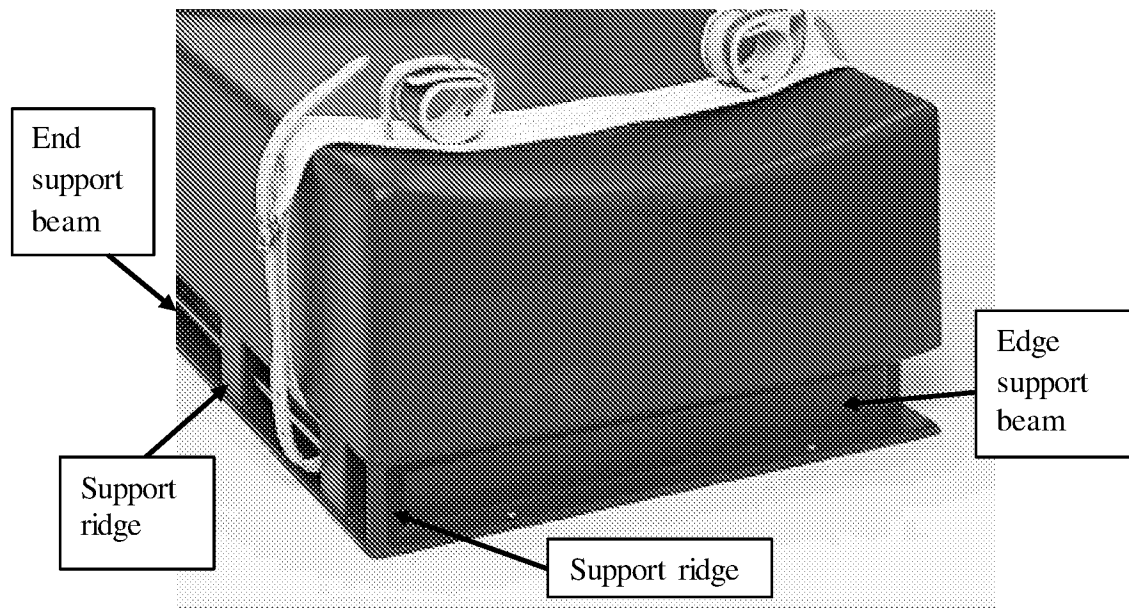
Regarding claim 4, Glasspec as modified discloses the intensive use bed of claim 1. Glasspec free standing bed further comprises a ridge on the top, the ridge adjacent to the recessed pocket.



Regarding claim 5, Glasspec as modified discloses the intensive use bed of claim 1. Glasspec further discloses that the molded outer shell further comprises a contoured outer surface.



Regarding claim 7, Glasspec as modified discloses the intensive use bed of claim 1. Glasspec Free Standing Bed does not disclose that the support ridge is vertically oriented. Glasspec Bed with Side Bars does disclose that it is known to provide vertical support ridges on a bed (see below, p. 8). It would have been obvious to one of ordinary skill in the art to include vertical support ridges along the walls of the free-standing bed of Glasspec. The rationale would have been that it is a known method of providing support for a flange.



Regarding claim 8, Glasspec as modified discloses the intensive use bed of claim 1. Glasspec further discloses a contoured, second end support ridge on a second one of the pair of end walls and a second side support ridge on the second side wall (see above).

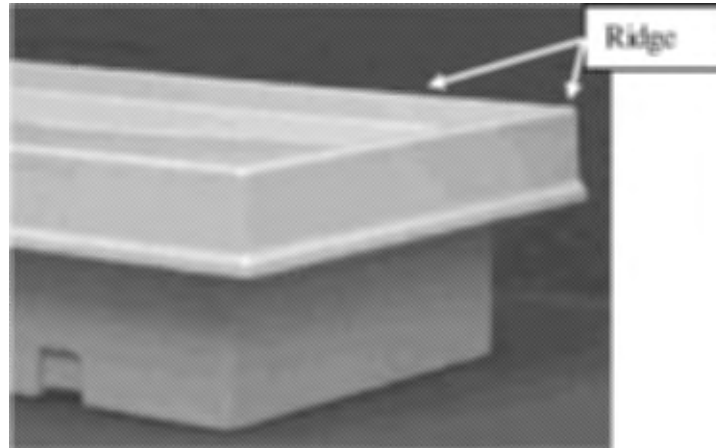
Regarding claim 9, Glasspec as modified discloses the intensive use bed of claim 8. Glasspec further discloses that the first and second end support ridges are disposed in a generally horizontal orientation, the first and second side support ridges are disposed in a generally horizontal orientation. The Free Standing Bed of p. 8 discloses a horizontal ridge along the upper perimeter to support the upper recess.

Regarding claims 10, Glasspec as modified discloses the intensive use bed of claim 1. Glasspec (Bed with Side Bars) further discloses that the outer shell comprises an edge support beam (see above- on both sides) attached to and extending between the first side wall and the second side wall.

Regarding claims 11 and 13, Glasspec as modified discloses the intensive use bed of claim 10. Glasspec further discloses an end support beam (see above- both sides) attached to and extending between the pair of end walls.

Regarding claim 12, Glasspec as modified discloses the intensive use bed of claim 11.

Glasspec further discloses that the recessed pocket comprises a perimeter, a ridge on a portion of the perimeter (see below).



Regarding claims 15 and 16, Glasspec as modified discloses the intensive use bed of claim 1, wherein the outer shell defines an inner chamber. Glasspec states at p. 8 that the free standing bed is “molded in one piece”, therefore it considered to be hollow and the hollow interior is the recess in the bottom.

Claims 14, 17 and 18 are rejected under 35 U.S.C. 103 as being unpatentable over Glasspec in view of Davis.

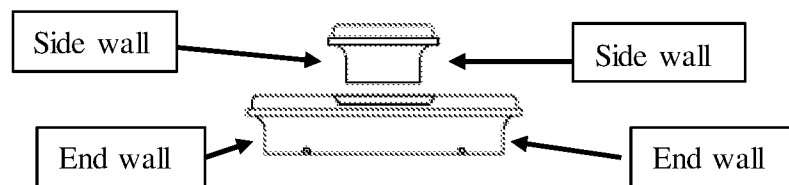
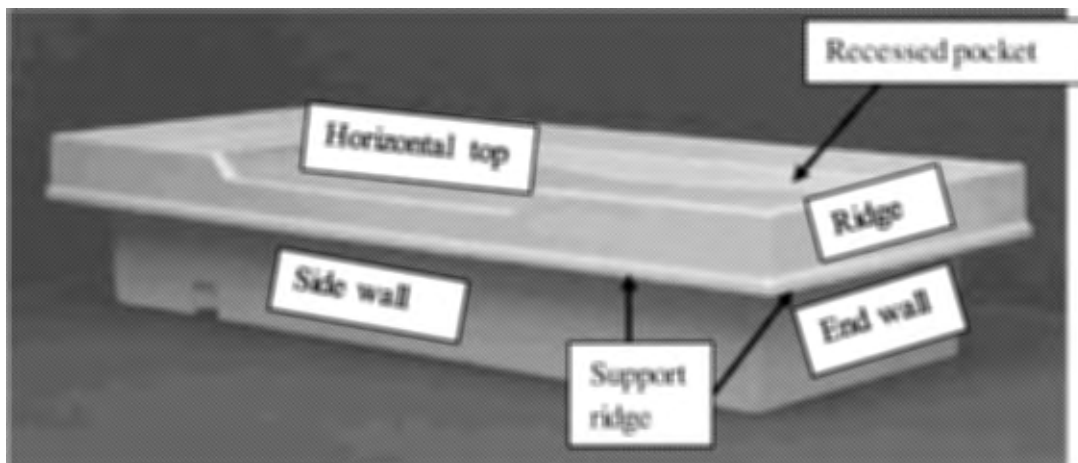
Regarding claims 14, 17 and 18, Glasspec discloses an intensive use bed (Duramax® free standing bed/closed sides) comprising a non-penetrable outer shell (p. 3, “a strong lightweight final molded part”) comprising a generally horizontal top (see below), a bottom (p. 8, “enclosed bottom), a generally vertical first end wall (see below), a generally vertical second end wall (see below), a generally vertical first side wall (see below), a generally vertical second side wall (see below), a recessed pocket in the top (see below), the recessed pocket extending toward the bottom, a ridge disposed on the top adjacent the recessed pocket (see below), each of the first

Application/Control Number: 90/014,485

Page 10

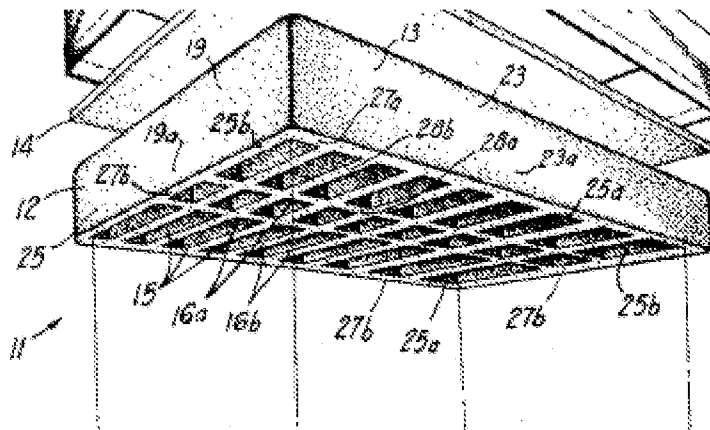
Art Unit: 3993

and second end walls on the top (the end walls extend up from the bottom and are therefore considered to be on the top), each of the first and second side walls on the top (the side walls extend up from the bottom and are therefore considered to be on the top), the first and second end walls attached to and between the first and second side walls (see below), the first and second end walls in spaced relation and substantially parallel to each other, the bottom on the first and second end walls, the bottom attached to the first and second side walls, the top and bottom in spaced relation and substantially parallel to each other, a plurality of contoured end support ridges (see below), an end support beam attached to and extending between the first and second side wall (see below), and an end support beam attached to and extending between the first and second end walls (see below).



Glasspec does not disclose a honeycomb structure in the bottom.

Davis discloses a frame for a bed in which the foundation includes openings in the bottom. Davis discloses that the recessed structure allows for a rugged yet lightweight structure (col. 3, lines 17-19). Davis further discloses that the outer shell comprises an edge support beam (16b,28b) attached to and extending between the first side wall and the second side wall (Davis, Fig. 1). Davis further discloses an end support beam (16a,28a) attached to and extending between the pair of end walls (Davis, Fig. 1).



Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the Glasspec bed, which comprises a substantially hollow fiberglass shell, to have some type of additional internal strengthening element(s), such as an EPS foam core comprising lateral and transverse beams which form recesses as taught by Davis.

While Glasspec discloses that the free-standing bed borrows from the other beds, (p. 8) of the catalogue does not specifically disclose the flanges for bolting bed to the floor. The bed on p. 7, discloses a recess in the end and side walls with flanges, bolt holes and vertical support ridges (see below). Based on the disclosure of Glasspec to borrow features from the other beds, it would have been obvious to one of ordinary skill in the art to modify the free-standing bed to

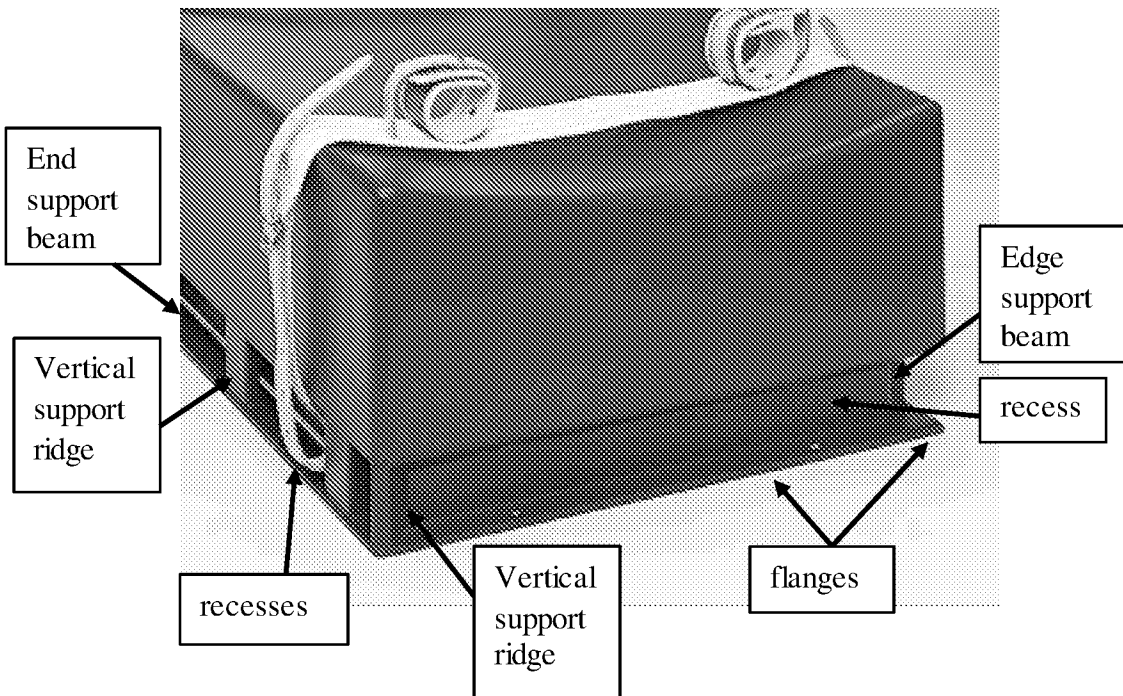
Application/Control Number: 90/014,485

Page 12

Art Unit: 3993

include flanges along the bottom and recesses in the walls to allow the bed to be bolted to the floor.

It would have been obvious to one of ordinary skill in the art to include vertical support ridges along the walls of the free-standing bed of Glasspec. The rationale would have been that it is a known method of providing support for a flange.



Claim 6 is rejected under 35 U.S.C. 103 as being unpatentable over Glasspec in view of as applied to claim 1 above, and further in view of Applicant's Admitted Prior Art as evidenced by the Declaration of Scott Karl.

Regarding claim 6, Glasspec as modified discloses the intensive use bed of claim 1.

Glasspec does not disclose that the bottom is molded separate from the top, the end walls, the first side wall and the second side wall. The Declaration of Karl Scott filed on April 4, 2020 states in paragraph 10 that the bottom of the prior art intensive use beds of Norix was formed as a separate element. Therefore, it would have been obvious to one of ordinary skill in the art at

the time of the invention to make the bottom separate from the top and side walls as it was a known method of making the enclosed structure at the time of filing.

Allowable Subject Matter

Claims 2 and 3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to claim(s) 1-14 have been considered but are moot because the new ground of rejection does not rely on the combination of references applied in the prior rejection of record for any teaching or matter specifically challenged in the argument.

The Applicant included a statement regarding an interview. Since the current office action has been made non-final, the Applicant is welcome to call for a formal interview.

Interview requests in Applicant's remarks are not considered a formal request for interview.

Declaration of Scott Karl submitted on January 4, 2021

In paragraph 5, Scott Karl describes the Attenda beds. However, the claims of the '150 patent do not require a "closed" structure. This appears to be a critical limitation for the Attenda beds. Therefore, the nexus between the claims and the product is not met. The Declaration of Scott Karl compares different models of Norix. The sales data for the competing Glasspec beds are not provided. A description of the advertising, pricing of the different Norix products and the pricing of the Glasspec products and the market share of the Glasspec product have not been provided.

PO is directed to MPEP 716.03 for evidence needed in a commercial success declaration:

- Must establish a **nexus** between the claimed features of the invention and the commercial success
 - Success must be linked to the claimed invention and not to some extraneous factor (e.g., advertising; brand name recognition; market share; other business events extraneous to the merits of the claimed invention)
 - Merely showing that there was commercial success of an article which embodied the invention is not sufficient (e.g. claims were to containers; commercial success is to a cup).
- Showing must include **at least**:
 - A description of what was sold. What was sold must include the features of invention **as claimed**.
 - A description of the relevant market for the product including advertising.
 - Sales results.
 - Total sales for competing products in the market
 - Indicate differences between these products and the applicant's
 - Total sales for products embodying the invention
 - Pricing of the various products.
 - Gross sales figures do not show commercial success absent evidence as to market share.
 - Inventor's opinion as to the purchaser's reason for buying the product, alone, is insufficient to demonstrate a nexus between the sales and the claimed invention.

In paragraphs 16-20, Mr. Scott argues that there was a long-felt need for the invention.

PO states that the fiberglass beds were replaced by the new model which is not made from fiberglass. However, the claims do not require a specific material. The claims require a "molded, non-penetrable outer shell". The bed of Glasspec and the previous Norix bed meet this limitation. Therefore, it appears that the long-felt need was met by unclaimed features. PO is directed to MPEP 716.04 for the evidence needed in a long-felt need declaration.

- Showing of long-felt need should include evidence of **three factors**
 - The need recognized by those of ordinary skill in the art and not have been satisfied by another before the invention by applicant.
 - The invention must in fact satisfy the long-felt need.
 - Evidence must show unsuccessful efforts to solve the problem.
 - Existence of a prior art reference showing a solution to the problem is evidence that there is no long-felt need.

- Evidence of persistent need may be a series of patents or publications showing the problem to be solved and a solution which declarant claims is inoperable.
- A claim that the problem was “first recognized” by applicant contradicts a showing of long-felt need.

In paragraphs 21-26, Mr. Scott argues copying by competitors. The evidence does not demonstrate more than the mere fact of copying. The evidence does not provide evidence that the competitor tried for a substantial length of time to design a similar product, but failed and then copied the invention instead. PO is directed to MPEP 716.06 for the evidence needed in a copying declaration.

- Showing must be more than the mere fact of copying.
- The examiner should determine that the copying is not attributable to other factors such as:
 - lack of concern for patent property
 - contempt for patentees ability to enforce patent
- Evidence of copying was persuasive when alleged infringer tried for a substantial length of time to design a product similar to the claimed invention, but failed and then copied the invention instead.

Paragraph 20, is directed to issues not addressed in reexaminations.

Reexamination Procedures

In order to ensure full consideration of any amendments, affidavits or declarations, or other documents as evidence of patentability, such documents must be submitted in response to this Office action. Submissions after the next Office action, which is intended to be a final action, will be governed by the requirements of 37 CFR 1.116, after final rejection and 37 CFR 41.33 after appeal, which will be strictly enforced.

Extensions of time under 37 C.F.R. 1.136(a) will not be permitted in these proceedings because the provisions of 37 C.F.R. 1.136 apply only to "an applicant" and not to parties in a

reexamination proceeding. Additionally, 35 U.S.C. § 305 requires that reexamination proceedings "will be conducted with special dispatch" (37 C.F.R. 1.550(a)). Extension of time in *ex parte* reexamination proceedings are provided for in 37 C.F.R. 1.550(c).

The patent owner is reminded of the continuing responsibility under 37 C.F.R. 1.565(a) to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving the patent, throughout the course of this reexamination proceeding. The third party requester is also reminded of the ability of similarly apprise the Office of any such activity or proceeding throughout the course of this reexamination proceeding. See MPEP §§ 2207, 2282 and 2286.

In any reexamination proceeding under this chapter, the patent owner will be permitted to propose any amendment to his patent and a new claim or claims thereto, in order to distinguish the invention as claimed from the prior art cited under the provisions of section 301 of this title, or in response to a decision adverse to the patentability of a claim of a patent. See 35 U.S.C. 305. For this reason, patent owner is notified that any amendment to a claim not involved in the reexamination proceeding may not be entered, and if entered, will bring that claim into the reexamination proceeding. See 37 CFR 1.104.

Patent owner is notified that any proposed amendment to the specification and/or claims in this reexamination proceeding must comply with 37 C.F.R. 1.530(d)-(j), must be formally presented pursuant to 37 C.F.R. 1.52(a) and (b), and must contain any fees required by 37 C.F.R. 1.20(c). Also, in accordance with 37 CFR 1.530(e), each claim amendment must be accompanied by an explanation of the support in the disclosure of the patent for the amendment (i.e., support for the changes made in the claim(s), support for any insertions and deletions). See MPEP § 2250(IV) for examples to assist in the preparation of proper proposed amendments in reexamination proceedings.

Application/Control Number: 90/014,485

Page 17

Art Unit: 3993

After the filing of a request for reexamination by a third party requester, any document filed by either the patent owner or the third party requested must be served on the other party (or parties where two or more third party requested proceedings are merged) in the reexamination proceeding in the manner provided in 37 C.F.R. 1.248. See 37 C.F.R. 1.550(f).

Per MPEP 2263, the shortened statutory period for reply of **2 MONTHS** is set for filing a response to this Office action.

All correspondence relating to this *ex parte* reexamination proceeding should be directed as follows:

By EFS: Registered users may submit via the electronic filing system, EFS-Web,
at:
<https://efs.uspto.gov/efile/portal/home>

By Mail: Mail Stop *Ex Parte* Reexam
ATTN: Central Reexamination Unit
Commissioner for Patents
U.S. Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

By FAX: (571) 273-9900
Central Reexamination Unit

By hand: Customer Service Window
Randolph Building
401 Dulany St.
Alexandria, VA 22314

For EFS-Web transmissions, 37 CFR 1.8(a)(1) (i)(C) and (ii) state that correspondence (except for a request for reexamination and a corrected or replacement request for reexamination) will be considered timely filed if: (a) it is transmitted via the Office's electronic

Application/Control Number: 90/014,485

Page 18

Art Unit: 3993

filing system in accordance with 37 CFR 1.6(a)(4); and, (b) includes a certificate of transmission for each piece of correspondence stating the date of transmission, which is prior to the expiration of the set period of time in the Office action.

Any inquiry concerning this communication or earlier communications from the Reexamination Legal Advisor or Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit (CRU) at telephone number: 571-272-7705. The CRU's fax number is: 571-273-9900.

/Patricia L. Engle/

Patricia L. Engle

AU 3993, Central Reexamination Unit

(571) 272-6660

Conferees: /dor/ /E.D.L/

SPRS, Art Unit 3993



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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 90/014,485 | 04/04/2020 | 10507150 | CTU0001 | 1462 |
| 50981 | 7590 | 07/02/2021 | EXAMINER | |
| Applied Patent Services | | | ENGLE, PATRICIA LYNN | |
| PO BOX 231 | | | | |
| Itasca, IL 60143 | | | | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3993 | |
| | | | MAIL DATE | DELIVERY MODE |
| | | | 07/02/2021 | PAPER |

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(THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS)

Steven M. Evans
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Naperville, IL 60567

***EX PARTE* REEXAMINATION COMMUNICATION TRANSMITTAL FORM**

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|---|-------------------------------------|---|--------------------------|
| Notice of Intent to Issue Ex Parte Reexamination Certificate | Control No. 90/014,485 | Patent Under Reexamination 10507150 | |
| | Examiner PATRICIA L ENGLE | Art Unit 3993 | AIA Status Yes |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

1. ☒ Prosecution on the merits is (or remains) closed in this *ex parte* reexamination proceeding. This proceeding is subject to reopening at the initiative of the Office or upon petition. *Cf.* 37 CFR 1.313(a). A Certificate will be issued in view of
 - (a) ☒ Patent owner's communication(s) filed: 22 April 2021 and 03 June 2021.
 - (b) ☐ Patent owner's failure to file an appropriate timely response to the Office action mailed: ____.
 - (c) ☐ Patent owner's failure to timely file an Appeal Brief (37 CFR 41.31).
 - (d) ☐ The decision on appeal by the ☐ Board of Patent Appeals and Interferences ☐ Court dated ____.
 - (e) ☐ Other: ____.
2. The Reexamination Certificate will indicate the following:
 - (a) Change in the Specification: ☐ Yes ☒ No
 - (b) Change in the Drawing(s): ☐ Yes ☒ No
 - (c) Status of the Claim(s):
 - (1) Patent claim(s) confirmed: 1,4-5 and 7-14.
 - (2) Patent claim(s) amended (including dependent on amended claim(s)): 2-3 and 6
 - (3) Patent claim(s) canceled: ____.
 - (4) Newly presented claim(s) patentable: 15-18.
 - (5) Newly presented canceled claims: ____.
 - (6) Patent claim(s) ☐ previously ☐ currently disclaimed: ____.
 - (7) Patent claim(s) not subject to reexamination: ____.
3. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
4. ☒ Note the attached statement of reasons for patentability and/or confirmation. Any comments considered necessary by patent owner regarding reasons for patentability and/or confirmation must be submitted promptly to avoid processing delays. Such submission(s) should be labeled: "Comments On Statement of Reasons for Patentability and/or Confirmation."
5. ☐ Note attached NOTICE OF REFERENCES CITED (PTO-892).
6. ☐ Note attached LIST OF REFERENCES CITED (PTO/SB/08 or PTO/SB/08 substitute).
7. ☐ The drawing correction request filed on ____ is: ☐ approved ☐ disapproved.
8. ☐ Acknowledgment is made of the priority claim under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the certified copies have
 - ☐ been received.
 - ☐ not been received.
 - ☐ been filed in Application No. ____.
 - ☐ been filed in reexamination Control No. ____.
 - ☐ been received by the International Bureau in PCT Application No. ____.

* Certified copies not received: ____.
9. ☒ Note attached Examiner's Amendment.
10. ☐ Note attached Interview Summary (PTO-474).
11. ☐ Other: ____.

All correspondence relating to this reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Office action.

| | |
|--|---|
| | /Patricia L Engle/ Reexamination Specialist, Art Unit 3993 |
|--|---|

cc: Requester (if third party requester)

EXAMINER'S AMENDMENT

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

An examiner's amendment to the record appears below. The changes made by this examiner's amendment will be reflected in the reexamination certificate to issue in due course.

Please amend claim 18 as follows to place it in proper format:

18. (Previously Presented) An intensive use bed comprising a non-penetrable, hollow outer shell comprising a generally horizontal top, a bottom, a generally vertical first end wall, a generally vertical second end wall, a generally vertical first side wall, a generally vertical second side wall and an inner chamber, the inner chamber enclosed in the outer shell, a top recessed pocket in the horizontal top, the top recessed pocket extending toward the bottom, a ridge disposed on the horizontal top adjacent the top recessed pocket, each of the first and second end walls on the horizontal top, each of the first and second side walls on the horizontal top, the first and second end walls attached to and between the first and second side walls, the first and second end walls in spaced relation and substantially parallel to each other, the bottom on the first and second end walls, the bottom attached to the first and second side walls, the top and bottom in spaced relation and substantially parallel to each other, the bottom comprising a plurality of recesses configured as a honeycomb structure, each of the plurality of recesses extending from the bottom toward the horizontal top, the outer shell further comprises a mounting flange on the first sidewall adjacent the bottom, a plurality of contoured end support ridges in the first end wall, a plurality of contoured side support ridges in the first side wall, the outer shell further

Application/Control Number: 90/014,485
Art Unit: 3993

Page 3

comprises an edge support beam attached to and extending between the first and second side walls, and an end support beam attached to and extending between the first and second end walls.

STATEMENT OF REASONS FOR PATENTABILITY AND/OR CONFIRMATION

The following is an examiner's statement of reasons for patentability and/or confirmation of the claims found patentable in this reexamination proceeding: Regarding claims 1-3, 14 and 18, the claim requires that the intensive use bed has a generally horizontal top, a bottom, a pair of generally vertical end walls, a generally vertical first side wall, a generally vertical second side wall and a plurality of mounting flanges, wherein the bottom attached to the first and second side walls whereby the top and bottom are in spaced relation and substantially parallel to each other and a recessed pocket in the bottom and one of the plurality of mounting flanges disposed in a first one of the pair of end walls adjacent the bottom, another one of the plurality of mounting flanges disposed in the first side wall adjacent the bottom.

The prior art of record is Glasspec, Norix and Davis. Glasspec discloses a plurality of intensive use beds. While the intensive use beds of Glasspec disclose a pair of end walls, a pair of side walls, a mounting flange and a bottom surface. Glasspec does not provide clear evidence of a recess in the bottom. It would have been obvious to one of ordinary skill in the art to have the bottom form an opening in the bottom but it would not have been obvious to one of ordinary skill in the art to have the bottom form a recess as argued by the Patent Owner. It is noted that the Patent Owner has argued that Glasspec does not show a second side wall or a second end wall (as they are not visible) and therefore it would not have been obvious to one of ordinary

Application/Control Number: 90/014,485

Page 4

Art Unit: 3993

skill to determine that there are four sides to the “Free Standing Bed/ Closed Sides” or “Bed with Side Bars”. This argument is not persuasive.

Norix discloses intensive use beds similar to Glasspec.

Davis discloses a molded expanded polystyrene bed assembly. The bed of Davis includes a recess in the bottom.

While Glasspec and Davis disclose all of the elements, the evidence on record does not disclose a rationale for using a molded expanded polystyrene bed assembly inside the enclosure of Glasspec to achieve a bottom with a recess. Therefore, it would not have been obvious to one of ordinary skill in the art at the time of the invention to combine Glasspec and Davis to achieve the claims.

Any comments considered necessary by PATENT OWNER regarding the above statement must be submitted promptly to avoid processing delays. Such submission by the patent owner should be labeled: "Comments on Statement of Reasons for Patentability and/or Confirmation" and will be placed in the reexamination file.

All correspondence relating to this *ex parte* reexamination proceeding should be directed as follows:

By EFS: Registered users may submit via the electronic filing system, EFS-Web, at:
<https://efs.uspto.gov/efile/portal/home>

By Mail: Mail Stop *Ex Parte* Reexam
ATTN: Central Reexamination Unit
Commissioner for Patents
U.S. Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Application/Control Number: 90/014,485
Art Unit: 3993

Page 5

By FAX: (571) 273-9900
Central Reexamination Unit

By hand: Customer Service Window
Randolph Building
401 Dulany St.
Alexandria, VA 22314

For EFS-Web transmissions, 37 CFR 1.8(a)(1) (i)(C) and (ii) state that correspondence (except for a request for reexamination and a corrected or replacement request for reexamination) will be considered timely filed if: (a) it is transmitted via the Office's electronic filing system in accordance with 37 CFR 1.6(a)(4); and, (b) includes a certificate of transmission for each piece of correspondence stating the date of transmission, which is prior to the expiration of the set period of time in the Office action.

Any inquiry concerning this communication or earlier communications from the Reexamination Legal Advisor or Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit (CRU) at telephone number: 571-272-7705. The CRU's fax number is: 571-273-9900.

/Patricia L Engle/
Reexamination Specialist, Art Unit 3993
571-272-6660

Conferees: /dor/ /E.D.L/
SPRS, Art Unit 3993



UNITED STATES PATENT AND TRADEMARK OFFICE

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 90/014,844 | 08/27/2021 | 10507150 | CTU0003 | 4487 |

50981 7590 10/27/2021
 Applied Patent Services
 PO BOX 231
 Itasca, IL 60143

EXAMINER

STORMER, RUSSELL D

ART UNIT

PAPER NUMBER

3993

MAIL DATE

DELIVERY MODE

10/27/2021

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



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(THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS)

STEVEN M. EVANS
CHICAGO IP LAW
1750 W. OGDEN AVE., #2405
NAPERVILLE, IL 60567

***EX PARTE* REEXAMINATION COMMUNICATION TRANSMITTAL FORM**

REEXAMINATION CONTROL NO. 90/014,844 .

PATENT UNDER REEXAMINATION 10507150 .

ART UNIT 3993 .

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

SA221

A171

| | | | |
|--|--------------------------------------|---|---------------------------------|
| Order Granting Request For Ex Parte Reexamination | Control No. 90/014,844 | Patent Under Reexamination 10507150 | |
| | Examiner RUSSELL D STORMER | Art Unit 3993 | AIA (FITF) Status Yes |

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

The request for *ex parte* reexamination filed 08/27/2021 has been considered and a determination has been made. An identification of the claims, the references relied upon, and the rationale supporting the determination are attached.

Attachments: a) ☐ PTO-892, b) ☒ PTO/SB/08, c) ☐ Other: _____

1. ☒ The request for *ex parte* reexamination is GRANTED.

RESPONSE TIMES ARE SET AS FOLLOWS:

For Patent Owner's Statement (Optional): TWO MONTHS from the mailing date of this communication (37 CFR 1.530 (b)). **EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.550(c).**

For Requester's Reply (optional): TWO MONTHS from the **date of service** of any timely filed Patent Owner's Statement (37 CFR 1.535). **NO EXTENSION OF THIS TIME PERIOD IS PERMITTED.** If Patent Owner does not file a timely statement under 37 CFR 1.530(b), then no reply by requester is permitted.

cc:Requester (if third party requester)

Application/Control Number: 90/014,844
Art Unit: 3993

Page 2

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Decision Granting Ex Parte Reexamination

A Substantial New Question of patentability (“SNQ”) affecting claims 1-5, 7-9, 15, and 16 of United States Patent Number 10,507,150 to Karl et al (hereinafter the “’150 patent”) is asserted in the Request for *ex parte* reexamination filed by a third party Requester on August 27, 2021.

Preliminary Matters

This reexamination proceeding, 90/014,844 (the “instant reexamination”), is the second to be requested and granted for claims of the ‘150 patent. The first proceeding, 90/014,485 (the “first,” “prior,” or “485” reexamination), concluded with the Notice of Intent to Issue *Ex Parte* Reexamination Certificate (NIRC) mailed July 2, 2021. The Reexamination Certificate issued August 19, 2021.

As set forth in MPEP 2295, when a reexamination request is filed on a patent for which a reexamination certificate has already issued, the second reexamination request is to be considered based on the claims in the patent as modified by the previously issued reexamination certificate, and not based on the original claims of the patent.

Accordingly, this Decision based on the claims as they appear in the Reexamination Certificate rather than the original claims of the ‘150 patent.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 3

***Prior Art Documents Relied Upon in the Request and Addressed in this
Determination***

Auburn (Exhibit B, U.S. Patent No. 5,490,292 to Auburn)

Walker (Exhibit C, U.S. Patent No. 5,303,438 to Walker)

Davis (Exhibit D, U.S. Patent No. 3,973,281 to Davis et al.)

Glasspec (Exhibit E, Glasspec Product Catalog entitled "Glasspec Intensive Use Furniture" published prior to October 5, 2006)

Norix (Exhibit L, Norix Group, Inc. 2004 Product Catalog entitled "Norix Intensive Use Furniture")

Karl (Exhibit Q, U.S. Patent No. 5,857,742 to Karl et al.)

Brief Summary of the Prosecution History of the '150 Patent

Original Examination¹

The subject 10,507,150 Patent was filed with claims 37-45 as SN 15/583,955 (the '955 Application) on May 1, 2017. The '150 Patent is a continuation of SN 13/450,508 (U.S. Patent No. 9,661,933) filed on April 19, 2012, which is a continuation of SN 13/186,853 (Abandoned) filed on June 20, 2011, which is a continuation of SN 11/868,308 (U.S. Patent No. 8,007,059) filed on October 5, 2007.

In the first Office action, mailed in November 24, 2017, claims 37-45 were rejected as either anticipated by or obvious over Karl (U.S. PGPub 2009/0091229).

In the Response filed January 24, 2018, claim 42 was canceled and claims 46-57 were added.

¹ See the IFW file of 15/583,955 for the complete prosecution history of the subject '150 patent.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 4

In the next Office action, mailed April 3, 2018, all of the claims (37-41 and 43-57) were rejected as either anticipated by Sjolie or obvious over Sjolie in view of Gladney and/or Sheng.

In the Response filed June 11, 2018, the claims (especially claims 37 and 43) were amended and arguments were presented.

In the Final rejection mailed August 24, 2018, Claims 37-40, 43, and 45-57 were rejected over Gladney in view of Peftoulidis, and claims 41 and 44 were rejected further in view of Sheng. No claims were indicated to be allowable.

In the telephone interview conducted October 30, 2018, claims 37, 43, and 46 were discussed, and applicant "proposed amending the independent claims to include limitations that the top is fluid impervious and the means for attaching secures the outer shell to the wall or floor of the room." The examiner also "suggested including structural limitations to the fastener pocket." See the Examiner's Interview Summary mailed October 31, 2018.

An RCE was filed December 12, 2018, with arguments and an incomplete listing of claims. The claim amendment was apparently eventually entered.

A non-final office action was mailed May 21, 2019, rejecting claims 37-40, 43, and 45 over Gladney and Peftoulidis, claims 41 and 44 were rejected as obvious further in view of Sheng, and claims 46-57 were rejected over Gladney in view of Walker (U.S. Patent 5,303,438, which was newly cited by the examiner. Walker was described as teaching a one-piece rotation molded hollow bed having a bottom surface defined by a base 20, a ridge 40, 42, 44, 46, and a storage compartment 70. No claims were indicated to be allowable.

Application/Control Number: 90/014,844
 Art Unit: 3993

Page 5

In the amendment filed September 20, 2019, claims 37-45 were canceled.

Claim 46 was amended as follows:

46. (Currently amended) An intensive use bed comprising a molded, non-penetrable outer shell having a generally horizontal top surface, a bottom, a pair of generally vertical end walls, a generally vertical first side wall, and a generally vertical second side wall and a plurality of mounting flanges, each of the generally vertical end walls on the top surface, the first generally vertical side wall on the top surface, the first side wall attached to and between the pair of end walls whereby the end walls are in spaced relation and substantially parallel to each other, the second generally vertical side wall on the top surface, the second side wall attached to and between the pair of end walls, the bottom on the pair of generally vertical end walls, the bottom attached to the first and second side walls whereby the top- surface and bottom are in spaced relation and substantially parallel to each other, each of the plurality of mounting flanges comprising a bolt hole extending through the bottom, one of the plurality of mounting flanges disposed in the first end wall adjacent the bottom, another one of the plurality of mounting flanges disposed in the first side wall adjacent the bottom, a first end support ridge in the first end wall, a first side support ridge disposed in the first side wall, a recessed pocket in the top, a recessed pocket in the bottom.

New claims 62 was added as shown below:

62. (New) An intensive use bed comprising a non-penetrable outer shell comprising a generally horizontal top, a bottom, a generally vertical first end wall, a generally vertical second end walls, a generally vertical first side wall and a generally vertical second side wall, a recessed pocket in the top, the recessed pocket *extending toward* the bottom, a ridge disposed on the top adjacent the recessed pocket, each of the first and second end walls on the top, each of the first and second side walls on the top, the first and second end walls attached to and between the first and second end walls, the first and second end walls in spaced relation and substantially parallel to each other, the bottom on the first and second end walls, the bottom attached to the first and second side walls, the top and bottom in spaced relation and substantially parallel to each other, the bottom comprising a plurality of openings configured as a honeycomb structure, the openings extending from the bottom toward the top, the shell further comprises a mounting flange on the first sidewall adjacent the bottom, a plurality of contoured end support ridges on the first end wall, a plurality of contoured side support ridges on the first side wall, an edge support beam attached to and extending between the first and second

Application/Control Number: 90/014,844
Art Unit: 3993

Page 6

side wall, and an end support beam attached to and extending between the first and second end walls.

Further, applicant argued:

With respect to claims 46 and new claim 62, Applicants amend claim 46 to further claim the mounting flange having a bolt hole on the first side wall adjacent the bottom and the contoured ridges formed in the first side wall and first end wall. Applicants traverse the rejection. Applicants assert the combination of Gladney and Walker not teach or suggest Applicants' claimed invention as amended. There is no reasonable expectation of success to one skilled in the art at the time the claimed invention was made to make the non-penetrable shell comprising end beams, edge beams, a recessed pocket in the top and a mounting flange of Applicants' invention, based on the lattice plastic work of Gladney and the portable cot of Walker.

The next Office action was a Notice of Allowability mailed on October 3, 2019 and including the following Reasons for Allowance:

The prior art of record does not teach nor does any combination thereof fairly suggest an intensive use bed comprising a molded, non-penetrable outer shell as stated in the independent claims having a plurality of mounting flanges with each comprising a bolt hole extending through the bottom, one of the plurality of mounting flanges disposed in the first end wall adjacent the bottom, another one of the plurality of mounting flanges disposed in the first side wall adjacent the bottom, a first end support ridge in the first end wall, a first side support ridge disposed in the first side wall, a recessed pocket in the top, a recessed pocket in the bottom. The combination of elements as set forth in the claims is not shown by the prior art, and in particular the features as set forth above.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 7

From the prosecution history, it appears that claim 1 of the '150 patent was found allowable due to the combination of claimed features, especially the mounting flanges comprising a bolt hole extending through the bottom, a first end support ridge in the first end wall, a first side support ridge disposed in the first side wall, a recessed pocket in the top, a recessed pocket in the bottom, were missing from the prior art of record.

The prior '485 Reexamination²

On April 4, 2020, the Third Party Requester ("3PR") requested reexamination of claims 1-14 of U.S. Patent No. 10,507,150 (the subject '150 patent) based upon a rejection over combinations of Norix, Glasspec, and Davis for claim 1, and Norix and Davis for claim 14.

Reexamination was granted in the Order mailed April 21, 2020, which found that Norix, Glasspec, and Davis each raised an SNQ.

Patent Owner ("PO") filed a Patent Owner Statement on June 22, 2020.

3PR filed a Reply to the Statement on August 20, 2020.

In the Office action mailed October 1, 2020, claims 1-5 and 7-14 were rejected as obvious over Glasspec in view of Norix and Davis, and claim 6 was rejected over Glasspec in view of Norix and Davis, and further in view of Applicant's Admitted Prior Art as evidenced by the Declaration of Scott Karl.

In the response filed January 4, 2021, claim 6 was amended and new claims 15 to 18 were added, with claim 18 being independent. PO argued that Glasspec failed to teach a number of limitations in claim 1, and that the storage compartment limitations of

² See the IFW file of 900/014,485 for the complete record of the '485 proceeding.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 8

claims 2-3 were also not obvious. PO further argued that Norix was non-analogous prior art, and that Davis discloses a bed without an outer shell and without a recess in the bottom.

In the office action mailed February 22, 2021, claims 1, 4, 5, 7-13, 15 and 16 were rejected under 35 U.S.C. 103 as being obvious over Glasspec alone, claims 14, 17, and 18 are rejected over Glasspec in view of Davis, and claim 6 was rejected over Glasspec in view of Applicant's Admitted Prior Art as evidenced by the Declaration of Scott Karl. Claims 2 and 3 were objected to as being allowable over the prior art, but no reasons were given for the indicated allowability.

In the interview conducted on March 5, 2021, the discussion focused on the recessed bottom of the bed and the support ridge. It appears that no agreement was reached as to allowable subject matter.

In the response filed April 22, 2021, claims 6 and 18 were amended, and claims 2 and 3 were rewritten in independent form. PO again asserted multiple limitations in claim 1 were not found in the prior art (see page 7 of the arguments) arguing specifically:

Patent Owner respectfully asserts that the prior art of record does not teach nor does any combination thereof fairly suggest an intensive use bed comprising a molded, non-penetrable outer shell as stated in the independent claims having: a plurality of mounting flanges with each comprising a bolt hole extending through the bottom; one of the plurality of mounting flanges disposed in the first end wall adjacent the bottom; another one of the plurality of mounting flanges disposed in the first side wall adjacent the bottom; a first end support ridge in the first end wall; a first side support ridge disposed in the first side wall; a recessed pocket in the top; and a recessed pocket in the bottom.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 9

In the Notice of Intent to Issue a Re-examination Certificate (NIRC) mailed July 2, 2021, the following reasons for patentability/allowance are set forth for claims 1, 2, 3, and 14:

Davis discloses a molded expanded polystyrene bed assembly. The bed of Davis includes a recess in the bottom.

While Glasspec and Davis disclose all of the elements, the evidence on record **does not disclose a rationale for using a molded expanded polystyrene bed assembly inside the enclosure of Glasspec to achieve a bottom with a recess.** Therefore, it would not have been obvious to one of ordinary skill in the art at the time of the invention to combine Glasspec and Davis to achieve the claims.
(See NIRC, pp. 3-4; emphasis added)

Therefore, with respect to claims 1, 2, and 3, (reexamination of claim 14 is not requested), the subject matter found to be missing from the prior art is a bed having the recited combination of elements and including a recessed pocket in the bottom; and/or the disclosure of a rationale for achieving such a bed having a bottom with a recess.

Further, it appears that, in addition to the reasons given for claim 1 above, claim 2 was found patentable because the prior art was not found to render obvious an intensive use bed comprising a storage compartment in one of the generally vertical end walls, the first side wall or the second side wall.

Finally, it appears that, in addition to the reasons given for claim 1 above, claim 3 was found patentable because the prior art was not found to render obvious an intensive use bed comprising a storage compartment integrally molded into the molded shell.

Therefore, the salient limitations found to be missing during the first re-examination are those drawn to “a recessed pocket in the bottom” of the shell, “a

Application/Control Number: 90/014,844
Art Unit: 3993

Page 10

storage compartment” in one of the first and second side walls or the generally vertical end walls, and “a storage compartment integrally molded into the molded shell.”

***Analysis of the Substantial New Questions of Patentability
Raised by the Request***

The Request asserts SNQs with respect to all of the claims requested for re-examination, and further sets forth a detailed explanation of the pertinency and manner of applying the cited prior art to every claim for which reexamination is requested, in the manner set forth in MPEP §§ 2214 and 2216.

Substantial New Question Raised

Auburn

Auburn was not cited, considered, or discussed on the record during the original examination of the subject '150 patent, or during the prior '485 reexamination, nor was it previously considered or addressed in a final holding of validity by the Federal Courts.

The Request asserts Auburn raises an SNQ as to the recessed pocket in the bottom of the bed. See Request, pp. 13-14 and 16-17, for example.

According to the Request, Auburn “teaches a one-piece, rotationally molded bed having a non-penetrable outer shell with a bottom that forms a recess pocket inside the enclosure and a plurality of recessed pockets extending upward from the bottom into a hollow enclosed chamber. The Auburn Patent discloses all of the limitations of Claim 1 of the '150 Patent, except for mounting flanges having bolt holes in the side and end walls.” See Request, page 25.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 11

Indeed, Auburn discloses a one-piece molded bed 10 having a non-penetrable outer shell having a top surface, four sides, and a bottom side. The bottom side includes an open bottom recess 82.

Further, Auburn describes the benefits of providing a recess in the bottom, namely that the recess is dimensioned to receive an upper portion of a second, identical cot such that the cots may be stacked; and also the recess provides an insulating airspace between the sleeping surface and the floor. As such, Auburn provides a motivation or rationale for providing a recess in the bottom of a one-piece molded bed that was said to have been missing from the prior art in the first re-examination proceeding.

The Request further sets forth an explanation of the pertinency and manner in which Auburn is applied to the claims. See pages 16-17, 46-47, and 59-63, for example.

Therefore, Auburn has been shown to have new, non-cumulative technical teachings relevant to the limitations argued or found to be missing from the prior art used during the '485 reexamination and the original examination, and a reasonable Examiner would consider this reference to be important in determining the patentability of claims 1, 2, and 3 of the '150 patent.

Accordingly, it is **agreed** that Auburn, taken alone or in combination with other references cited in the request, raises an SNQ as to claims 1, 2, and 3 (and their depending claims) of the '150 patent.

Karl

Karl was not cited, considered, or discussed on the record during the original examination of the subject '150 patent, or during the prior '485 reexamination, nor was it previously considered or addressed in a final holding of validity by the Federal Courts.

The Request asserts Karl raises an SNQ as to the recessed pocket in the bottom of the bed. See Request, pp. 113-116.

According to the Request, Karl teaches a hollow one piece rotationally molded piece of furniture having side and rear walls, and a bottom having a recessed pocket.

Indeed, figures 2, 3, 4, and 5, at least, of Karl clearly show the one piece molded furniture to include a recess formed in the bottom thereof. This is especially well shown in the cross-sectional view of figure 5.

Therefore, Karl has been shown to have new, non-cumulative technical teachings relevant to the limitations argued or found to be missing from the prior art used during the prior '485 reexamination and the original examination, and a reasonable Examiner would consider this reference to be important in determining the patentability of claims 1, 2, and 3 of the '150 patent.

Accordingly, it is **agreed** that Karl, taken alone or together with other references cited in the request, raises an SNQ as to claims 1, 2, and 3 (and their depending claims) of the '150 patent.

Norix

The Request asserts an SNQ is raised by Norix with respect to claims 1-5, 7-9, 15, and 16. See page 41, for instance.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 13

As noted above in the Brief Summary of the Prosecution History, and in the Request, Norix was used in combination with other references to reject claims during the first reexamination of the '150 patent.

As such, Norix is "old art."

Reliance on previously cited/considered art, i.e., "old art," does not necessarily preclude the existence of an SNQ that is based exclusively on that old art. On November 2, 2002, Public Law 107-273 was enacted. Title III, Subtitle A, Section 13105, part (a) of the Act revised the reexamination statute by adding the following new last sentence to 35 U.S.C. 303(a) and 312(a):

"The existence of a substantial new question of patentability is not precluded by the fact that a patent or printed publication was previously cited by or to the Office or considered by the Office."

For any reexamination ordered on or after November 2, 2002, the effective date of the statutory revision, reliance on previously cited/considered art, i.e., "old art," does not necessarily preclude the existence of a substantial new question of patentability (SNQ) that is based exclusively on that old art. Rather, determinations on whether a SNQ exists in such an instance shall be based upon a fact-specific inquiry done on a case-by-case basis. For example, an SNQ may be based solely on old art where the old art is being presented or viewed in a new light, or in a different way, as compared with its use in the earlier concluded examination, in view of a material new argument or interpretation presented in the request for reexamination. See MPEP 2258.01.

Returning to the instant reexamination proceeding, the Request asserts an SNQ is raised by Norix as to the salient limitations of the storage compartments set forth in

Application/Control Number: 90/014,844
Art Unit: 3993

Page 14

claims 2 and 3. See page 41. Norix is used to teach these limitations in the proposed rejections of these claims. For example, see pages 105-107.

In the Request filed in the prior reexamination, Norix was used for its teaching of the storage compartments in proposed rejections of claims 2 and 3. See pages 45-46 of the Request filed April 4, 2020 in the '485 reexamination.

Also in the prior reexamination, the Examiner agreed that Norix raised an SNQ as to limitations drawn to the "recess in the top" and a "molded, non-penetrable outer shell." The storage compartments of Norix were not mentioned. See pages 6-7 of the Determination mailed April 21, 2020 in the '485 reexamination.

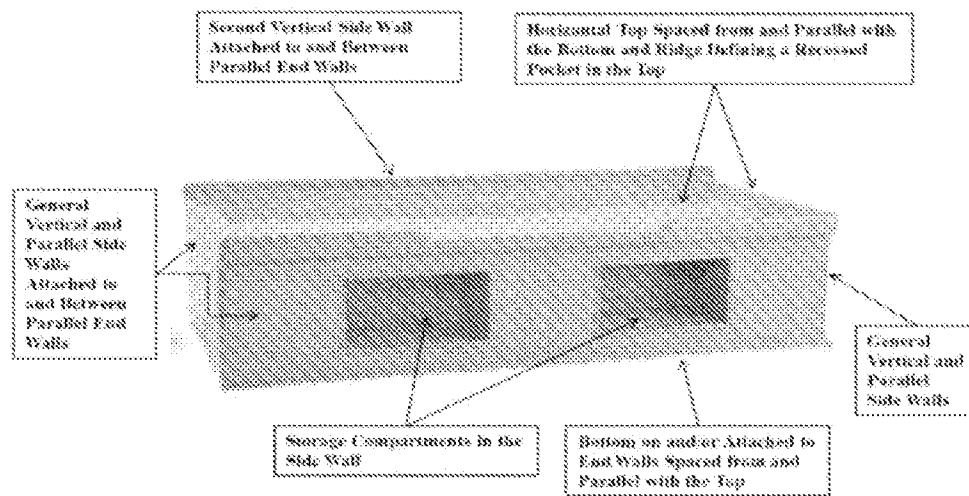
In the Office action mailed October 1, 2020 in the prior reexamination, Norix was used in a rejection of claim 1 for a teaching of vertical support ridges on an enclosed structure, but was not used in the rejection of claims 2 and 3 and the storage compartments taught by Norix were not discussed.

In the response filed January 4, 2021, Patent Owner argued with respect to the storage compartment limitation in claim 2:

It would not have been obvious to one skilled in the art to combine the storage compartments of the cell furniture with the walls of the free standing bed because the arcuate first end wall and first side wall of Glasspec. One skilled in the art at the time of the application **would recognize the arcuate walls of the free standing bed would lose their structural integrity with such an opening.** Furthermore, it would not be obvious to one skilled in the art to combine the storage compartment of the wall mounted bed with the arcuate wall of the free standing bed **because the arcuate shape of the walls would place the openings to the storage compartment in an awkward location for access.** Claim 2 is not rendered obvious as alleged in the Office Action. (Emphasis added)

Claim 3 was argued to define over the references for the same reasons.

In the instant Request, Norix is used for its teachings of storage compartments provided in a generally vertical wall of a molded bed, and of a storage compartment integrally molded into the molded shell of a bed, as recited in claims 2 and 3. On page 106, the Request reproduces a figure from page 11 of Norix, which is reproduced below.



The storage compartments are clearly shown and identified. Moreover, also identified are the generally vertical and parallel sidewalls, one of which includes the storage compartments.

The wall which includes the storage compartments is shown to be planar, and if the sidewalls are generally vertical and parallel to one another, then they would necessarily be planar.

Returning to Patent Owner's argument that arcuate walls of the free standing bed (of Glasspec) would lose their structural integrity, and would place the openings to the storage compartment in an awkward location for access, the planar wall taught by Norix would overcome these asserted problems because the storage compartments are placed in a planar wall not an arcuate wall.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 16

The question of whether or not claims 2 and 3 are patentable over the teachings of Norix (storage compartments disposed in a non-arcuate wall) has not been previously considered because Norix was not used in a rejection for these teachings in the original examination or the '485 reexamination.

Therefore, the instant Request has presented Norix in a new light and in a different way as compared to its use in the Request of the '485 re-examination, by way of a material new argument or interpretation.

As such, the Request has shown Norix to have *new, non-cumulative technical teachings* relevant to the limitations argued or found to be missing from the prior art used during the prior '485 reexamination, and a reasonable Examiner would consider this reference and its teachings important with respect to the salient limitation and the examination of claims 2 and 3 of the '150 patent.

Accordingly, it is **agreed** that Norix, taken alone or together with other references cited in the request, raises an SNQ as to claims 2 and 3 of the '150 patent.

Substantial New Question **Not** Raised

Glasspec

The Request asserts an SNQ is raised by Glasspec with respect to claims 1-5, 7-9, 15, and 16. See page 41, for instance.

As noted above in the Brief Summary of the Prosecution History, and throughout the Request, Glasspec was used alone and in combination with other references to reject claims during the first reexamination of the '150 patent.

As such, Glasspec is "old art."

Application/Control Number: 90/014,844
Art Unit: 3993

Page 17

As noted above, the existence of a substantial new question of patentability is not precluded by the fact that a patent or printed publication was previously cited by or to the Office or considered by the Office.

In the instant reexamination proceeding, the Request asserts an SNQ with respect to claims 2 and 3 as to the salient limitations of the storage compartment. While the Request does not appear to expressly assert an SNQ for these limitations, Glasspec is used to teach these limitations in the proposed rejections of claims 2 and 3. For example, see pages 74 and 83, at least.

However, the Request fails to present Glasspec in a new light, or use this reference in a different way, as compared with its use in the first reexamination.

During the prior '485 re-examination, Glasspec was considered for its teaching of a storage compartment in a rejection of claims 2 and 3. See Office action mailed October 1, 2020, pages 5 and 6. This use is noted multiple times in the instant Request, such as on pages 8 and 10.

In the instant Request, the very same teachings of Glasspec are used in the same manner for these limitations in claims 2 and 3. See pages 74-78 and 83-85. However, the Request does not provide an explanation of how these teachings of Glasspec are *presented in a new light or in a different way*, as compared with its use in the prior re-examination, such as by way of a material new argument or interpretation, or reliance on a different teaching in Glasspec.

Therefore, the Request fails to show that Glasspec has *new, non-cumulative technical teachings* relevant to the limitations argued or found to be missing from the

Application/Control Number: 90/014,844
Art Unit: 3993

Page 18

prior art used during the '485 reexamination, and an SNQ cannot be raised by this old art reference as to the salient limitation of claims 2 and 3 of the '150 patent.

Accordingly, Glasspec has **not** been found to raise an SNQ as to any of claims 1-5, 7-9, 15, and 16 of the '150 patent.

Davis

The Request asserts an SNQ is raised by Davis with respect to claims 1-5, 7-9, 15, and 16. See page 41, for instance.

As noted above in the Brief Summary of the Prosecution History, and in the Request, Davis was used in combination with other references to reject claims during the first reexamination of the '150 patent.

As such, Davis is "old art."

As noted above, the existence of a substantial new question of patentability is not precluded by the fact that a patent or printed publication was previously cited by or to the Office or considered by the Office.

In the instant reexamination proceeding, the Request asserts an SNQ with respect to claims 1, 2, and 3 as to the salient limitations of the recessed pocket in the bottom of the shell. While the Request does not appear to specifically assert an SNQ for these limitations, Davis is used to teach these limitations in the proposed rejections of these claims. For example, see pages 47, 74, and 83.

However, the Request fails to present Davis in a new light, or use this reference in a different way, as compared with its use in the first reexamination.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 19

During the prior '485 re-examination, Davis was considered for its teaching of a recess in the bottom of a molded bed in a rejection of claim 1. See page 5 of the Office action mailed October 1, 2020.

In the instant Request, the very same teachings of Davis are used in the same manner for these limitations in claims 1-3. However, the Request does not provide an explanation of how these teachings of Davis are *presented in a new light or in a different way*, as compared with its use in the prior re-examination, such as by way of a material new argument or interpretation, or reliance on a different teaching in Davis.

Therefore, the Request fails to show that Davis has *new, non-cumulative technical teachings* relevant to the limitations argued or found to be missing from the prior art used during the '485 reexamination, and an SNQ cannot be raised by this old art reference as to the salient limitation of claims 1-3 of the '150 patent.

Accordingly, Davis has **not** been found to raise an SNQ as to any of claims 1-5, 7-9, 15, and 16 of the '150 patent.

SNQs Not Asserted

Walker

The Request uses Walker for its teaching of a rotationally molded cot having a ridge surrounding and adjacent to the top surface thereof, and also for its teaching of support ridges. See pages 110-112.

However, the Request does not assert an SNQ is raised by Walker as to any of the salient limitations found to be missing during the original examination or the prior re-examination.

As such, Walker has not been analyzed as to an SNQ.

Claims Not Requested

The Request states on page 3 that reexamination of patent claims 6, 10-14, and 18 is not requested. The Request is silent as to claim 17, and reexamination of this claim is considered to be not requested.

While the decision to reexamine any claim for which reexamination has not been requested under 35 U.S.C. 302 lies within the sole discretion of the Office, the determination in both the order for reexamination and the examination stage will generally be limited solely to a review of the claims for which reexamination was requested. See MPEP 2240 and 2243, and *Sony Computer Entertainment America Inc. v. Dudas*, 85 USPQ2d 1594 (E.D. Va 2006).

Since requester did not request reexamination of, nor assert the existence of an SNQ for claims 6, 10-14, 17, and 18, these claims currently do not fall within the scope of the instant reexamination proceeding.

Conclusion and Scope of Reexamination

The Requester has shown that Auburn and Karl each raise an SNQ as to claims 1-5, 7-9, 15, and 16, as these claims appear on the reexamination certificate of the '150 patent. The Requester has also shown that Norix raises an SNQ as to claims 2 and 3.

The Requestor has not shown that Glasspec, Davis, or Walker, taken alone or together with any of the other cited references, raise an SNQ as to any of claims 1-5, 7-9, 15, and 16.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 21

Accordingly, claims 1-5, 7-9, 15, and 16 will be reexamined.

Waiver of Right to File Patent Owner Statement

Patent Owner has **not** agreed to waive its right to file a Patent Owner Statement under 37 C.F.R. 304, as noted in the Interview Summary mailed September 9, 2021.

Extensions of Time

Extensions of time under 37 CFR 1.136(a) **will not be permitted** in these proceedings because the provisions of 37 CFR 1.136 apply only to "an applicant" and not to parties in a reexamination proceeding. Additionally, 35 U.S.C. 305 requires that ex parte reexamination proceedings "will be conducted with special dispatch" (37 CFR 1.550(a)). Extensions of time in ex parte reexamination proceedings are provided for in 37 CFR 1.550(c).

Notice of Concurrent Proceedings or Litigation

The patent owner is reminded of the **continuing responsibility** under 37 CFR 1.565(a), to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving Patent No. 10,507,150 throughout the course of this reexamination proceeding. The third party requestor is also reminded of the ability to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving the subject patent. See MPEP §§ 2207, 2282 and 2286.

Application/Control Number: 90/014,844
Art Unit: 3993

Page 22

Submissions

In order to ensure full consideration of any affidavits or declarations or other documents as evidence of patentability, such documents must be submitted in response to the first Office action on the merits (which does not result in a close of prosecution). Submissions after the second Office action on the merits, which is intended to be a final action, will be governed by the requirements of 37C.F.R. 1.116, after final rejection and by 37 C.F.R. 41.33 after appeal, which will be strictly enforced.

Correspondence

All correspondence relating to this *ex parte* reexamination proceeding should be directed:

By EFS: Registered users may submit via the electronic filing system EFS-Web, at <https://efs.uspto.gov/efile/myportal/efs-registered>

By Mail to: Mail Stop *Ex Parte* Reexam
Attn: Central Reexamination Unit
Commissioner for Patents
United States Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

By FAX to: (571) 273-9900
Central Reexamination Unit

By hand: Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

For EFS-Web transmissions, 37 CFR 1.8(a)(1)(i) (C) and (ii) states that correspondence (except for a request for reexamination and a corrected or replacement request for reexamination) will be considered timely filed if (a) it is transmitted via the

Application/Control Number: 90/014,844
Art Unit: 3993

Page 23

Office's electronic filing system in accordance with 37 CFR 1.6(a)(4), and (b) includes a certificate of transmission for each piece of correspondence stating the date of transmission, which is prior to the expiration of the set period of time in the Office action.

Any inquiry concerning this communication or earlier communications from the Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

/RUSSELL D STORMER/
Primary Examiner, Art Unit 3993

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Primary Examiner
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Conferee: /SC/

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